



Cambridge Isotope Laboratories, Inc.  
**isotope.com**

**CHROMSERVIS®**

# Stable Isotope-Labeled Products For Metabolic Research



**Cambridge Isotope Laboratories, Inc.**

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## Ordering Information

The CIL Customer Service Department is open from 8:00 a.m. to 5:00 p.m. Eastern Time.  
Orders may be placed by fax, email, or via our website 24 hours a day.

Phone: **1.800.322.1174** (North America)  
**+1.978.749.8000**

Fax: **+1.978.749.2768**

Email: **cilsales@isotope.com**  
**intlsales@isotope.com** (International)

Website: **isotope.com**

*Images used are for illustrative purposes only and may not be representative of actual product(s).*

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*You can find all of the information presented in this catalog on [isotope.com](http://isotope.com). Visitors to our website can immediately access updated product information, availability, pricing, and documentation, such as a certificates of analysis (CoA) and safety data sheets (SDS). Visit [isotope.com](http://isotope.com) to learn more.*



Cambridge Isotope Laboratories, Inc. (CIL) is the world leader in the separation and manufacture of stable isotopes and stable isotope-labeled compounds. Isotope separation is performed at Cambridge Isotope Separations (CIS) in Xenia, Ohio – home of the world's largest  $^{13}\text{C}$  isotope separation facility, one of the world's largest  $^{18}\text{O}$  isotope-separation facilities, and the world's only commercial large-capacity  $\text{D}_2\text{O}$  enrichment columns. For over 40 years, CIL has remained the premier supplier of stable isotope standards for MS, NMR, and MRS/MRI research applications. Examples of metabolic research products include bile acids, drugs and their metabolites, fatty acids and lipids, metabolomic and MS/MS screening mixes and kits, steroids and hormones, and vitamins and their metabolites. Our products have been specifically designed and tested with the most discerning mass spectrometrists in mind. CIL actively supports the MS community through meeting sponsorships and customer collaborations.

## Ordering and Contact Information

### Placing an Order

Phone: 1-800-322-1174 (North America) or  
+1-978-749-8000 (International)  
Office hours are 8:00 a.m. to 5:00 p.m.  
Eastern Time (ET)

Fax: +1-978-749-2768

Email: [cilsales@isotope.com](mailto:cilsales@isotope.com) (North America)  
[intlsales@isotope.com](mailto:intlsales@isotope.com) (International)

E-commerce: Visit <https://shop.isotope.com> to request a quote,  
place orders, obtain product information, or submit  
technical questions.

CIL products are constantly updated on the website so be sure  
to visit <https://shop.isotope.com> for current information.

Please help us to expedite the shipment of your order by including  
the following information:

- Your name, phone number, and email address
- End user name, phone number and email address  
(if different)
- Shipping address, including street
- Billing address
- Purchase order number or credit card information
- CIL catalog number and product name
- Quantity: mg (milligrams), g (grams), kg (kilograms),  
mL (milliliters), L (liters), etc., as applicable, including  
number of units
- Catalog price or CIL quotation number
- Special instructions for packaging or shipping
- Preferred mode of shipping (e.g. FedEx or UPS)

*Please note that there is a \$50 minimum-order requirement.*  
We do not require written confirmation of phone orders for  
established customers.

### First-Time Orders

If ordering for the first time, please email or fax the following  
information on company letterhead to establish a line of credit  
with a copy of your order:

- A federal tax identification number
- Three credit/banking references

Also include your shipping address, billing address, phone, fax,  
email and URL address.

*To expedite delivery of your first order, prepayment should be  
made by credit card or wire transfer in US funds.*

**Please call 1-800-322-1174 to contact your regional sales  
manager with any inquiries or to request a quotation.**

### Pricing Information and Terms of Sale

#### North American Orders

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- All prices are in US dollars. Any importation costs for  
international orders are not included. Please consult our  
Customer Service Department for pricing information or  
packaging options.
- When stock is available and subdivision is possible, we will  
accept orders for smaller than catalog amounts. Please request  
a quotation as a quantity discount may apply.
- Please note that prices are subject to change without notice.  
Occasionally the inventory of some products listed may become  
depleted. Replacement of stock may be subject to a minimum  
order quantity.
- You may check stock and confirm prices by visiting [isotope.com](https://shop.isotope.com),  
contacting the CIL Customer Service Department at 1-800-322-  
1174 (North America only), or emailing [cilsales@isotope.com](mailto:cilsales@isotope.com).
- CIL will be pleased to assist customers with firm written  
quotations. Most quotes are valid for 30-60 days. Longer  
terms may be granted by CIL upon request.
- Net 30 days from invoice date with prior credit approval.  
Past-due invoices will be subject to a 1.5% per month service  
charge; 18% per annum. We reserve the right to request  
payment in advance or COD terms on initial orders with CIL.
- We accept VISA, MasterCard, American Express, and university  
purchasing card orders.
- Shipping terms are FCA Andover, MA USA, unless otherwise  
indicated. Any damage to the package or product in transit is  
the buyer's responsibility to adjust with the carrier.
- Domestic shipping charges will be added to invoices (unless  
collect shipment is requested).

#### International Orders

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- CIL has an extensive international sales network. For a complete  
distributor listing, please visit [isotope.com](https://shop.isotope.com).
- For international orders or quotations, please contact  
CIL International Sales at [intlsales@isotope.com](mailto:intlsales@isotope.com) or  
+1-978-749-8000.
- Our representatives and agents are available to assist you with  
your requirements for our products. Please consult your local  
CIL representative for appropriate pricing and payment terms.  
Shipping charges and any applicable import duties and taxes  
will be added to orders placed with distributors.
- For direct orders, CIL generally requires prepayment in US dollars  
by an international bank check or bank wire transfer.  
We will be pleased to provide pro forma invoices upon request.  
Shipping charges will be added to direct orders. Any applicable  
import duties and taxes will be charged to the purchaser by the  
shipping company or customs agent.
- Shipping terms are FCA Andover, MA USA, unless otherwise  
indicated. Any damage to the package or product in transit is  
the buyer's responsibility to adjust with the carrier.

## Shipping Information

### USA

- Shipments within the United States will be sent via UPS, FedEx, or truck.
- Orders within the United States for in-stock items placed before 2:00 p.m. (ET) can ship the same day via FedEx or on the next working day via UPS.

### Canada

- Canadian shipments will be sent via FedEx or truck.
- Please include the name of your customs broker.
- Orders to Canada for in-stock items will ship one to two working days after receipt of purchase order.

### International

- International shipments will be sent via FedEx or best method.
- CIL tries to be as cost effective as possible, but the carrier may assess additional charges.

We will accommodate your shipping instructions whenever it is feasible to do so. CIL reserves the right to change the method of transportation, if required, to comply with transportation regulations. Such a change would not alter your responsibility for payment of shipping charges. Additional shipping charges may apply.

### Return Shipment Policy

Returns may be made within 30 days of shipment with prior approval from CIL. We reserve the right to impose restocking charges when a return is at the sole option of the buyer. The buyer is responsible for approving the quality and quantity of any product within the 30-day period stated above. If an error by CIL results in an incorrect or duplicate shipment, a replacement will be sent or the appropriate credit allowed. We typically request return of the original product. Product returns must reference the original purchase order number, CIL order number (e.g. DB-A1000), Returned Goods Authorization (RGA) number, and the date CIL authorized the return. Under no circumstances will credit or replacement be given for products without prior authorization by CIL.

## Product Information

### Documentation

A Certificate of Analysis (CoA) and a Safety Data Sheet (SDS) are supplied with every shipment. Additional product information may be available upon request.

The chemical purity (CP) of CIL products is 98% unless otherwise specified.

### Limited Warranty

CIL represents that the products are, as of the date of shipment, as described on the CoA. CIL makes no other warranty, express or implied, with respect to its products, including any warranty of merchantability or fitness for any particular purpose. CIL's maximum liability for any reason shall be to replace any nonconforming product or refund the applicable purchase price.

### Research Use Statement

CIL research products are labeled "For research use only. Not for use in diagnostic procedures." Persons intending to use CIL products in applications involving humans are responsible for complying with all applicable laws and regulations, including, but not limited to, the US Federal Drug Association (FDA), other local regulatory authorities and institutional review boards concerning their specific application or desired use.

It may be necessary to obtain approval for using these research products in humans from the US FDA or the comparable governmental agency in the country of use. CIL will provide supporting information, such as lot-specific analytical data and test method protocols, to assist medical research groups in obtaining approval for the desired use.

## Additional Information

### 24-Hour Emergency Response

CIL and its direct subsidiary CIL Isotope Separations, LLC, are registered with Emergency Response CHEMTREC®. In the event of a chemical-transportation emergency, CHEMTREC provides immediate advice for those at the scene of emergencies, then promptly contacts the shipper of the chemicals for more detailed assistance and appropriate follow-up. CHEMTREC operates 24 hours a day, seven days a week to receive emergency calls. In the case of chemical-transportation emergencies, call one of the following numbers:

Continental United States: 1-800-424-9300	Outside of Continental USA: 1-703-527-3887 (this number may be called collect)
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## Stable Isotopes in Metabolomics and Metabolism

*Researcher  
Perspective*

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Recent advances in mass spectrometry (MS) and nuclear magnetic resonance (NMR) technologies have greatly enhanced metabolite analysis. Hundreds to thousands of metabolites can now be measured simultaneously with unprecedented accuracy from exceedingly small amounts of biological material. These technical developments have given rise to the field of metabolomics, which generally aims to assess metabolic regulation as a function of health and disease. During the last decade, it has become relatively routine to perform metabolomics analysis on most biological samples. Interpretation of the acquired data, however, remains a considerable challenge. Stable isotopes are providing experimental strategies that overcome some of these barriers. One obstacle in performing metabolomics is that many of the signals or peaks detected by MS do not correspond to unique metabolites of biological relevance. Rather, it has been demonstrated that hundreds to thousands of MS peaks arise from contaminants and artifacts. Given that many endogenous metabolites are derived from a nutrient precursor, isotopic labeling is being used to distinguish biologically derived metabolites from experimental noise. Additionally, because the incorporation of stable isotopes generally does not affect the retention time or ionization efficiency of metabolites, isotopically labeled compounds are the gold standard for quantifying the concentration of endogenous metabolites within a complex biological matrix.

Beyond their role in improving the analytical accuracy of metabolomics, isotopes can also be used as tracers in metabolic analyses. When metabolomics is performed without stable isotopic tracers, only metabolite concentrations can be determined. When metabolomics is performed with stable isotopic tracers, in contrast, both metabolite concentrations and pathway activities (i.e., metabolic fluxes) can be assessed. The latter provides a much richer understanding of metabolism.

While measuring metabolite concentrations without isotopes can certainly be insightful, such measurements reveal only part of the story. They provide a mere snapshot of metabolism that cannot be translated into a dynamic map of metabolite traffic on biochemical

routes. When comparing two sample groups, an elevated metabolite level may indicate increased or decreased pathway flux. This is because metabolites can accumulate not only due to increased production, but also due to decreased consumption. Yet, the difference between increased production and decreased consumption may yield entirely different experimental interpretations. In a biomedical context, for example, increased production of a metabolite may suggest pharmacological inhibition of the pathway as a therapeutic strategy. Thus, to understand pathway regulation and metabolic mechanisms of disease, the application of isotopic tracers is required.

In addition to enabling assessment of metabolic fluxes, isotopic tracers also add biochemical resolution to metabolomics analyses. Most metabolites lie at the intersection of multiple metabolic pathways. Without isotopic labeling, only a single metabolite pool is measured. It is not possible to distinguish the amount of this pool that is associated with one metabolic pathway relative to another. By using isotopic tracers, on the other hand, the fraction of the metabolic pool associated with a specific pathway can be delineated with labeling. As an example, palmitate can be synthesized from numerous metabolic substrates such as glucose, glutamine, acetate, etc. Stable isotopic tracers enable the fraction of palmitate produced from each precursor to be quantified.

Importantly, most modern MS and NMR instrumentation is well suited for the analysis of stable isotopes. Although processing of the data can be complicated, there are an increasing number of user-friendly software platforms (some commercial and some freely available). Moreover, when the appropriate isotopic tracer is selected, simple qualitative analyses of the data is often sufficient to yield important insight into metabolic pathway activities. Finally, it is worth noting that isotopic tracing experiments are not limited to micro-organisms that can be grown in defined media. To the contrary, some of the most widely used applications of isotope labeling have been in mammalian cell culture, plant and animal models, and in human patients.

# Products

## Amino Acids and Their Derivatives

Amino acids play critical roles in biological functions as building blocks of peptides and proteins, as well as intermediates of various metabolic pathways (e.g., citric acid cycle, urea cycle). These compounds are also reported to influence the pathogenesis and propagation of metabolic disorders/disease, with clinically designed biomarker research aimed to detect disease at the earliest stage.

To aid qualitative and quantitative metabolic research, CIL offers an array of unlabeled and stable isotope-labeled free amino acids. These can be used as internal standards or NMR probes in MS- and NMR-based research studies. The amino acids are canonical (e.g., arginine, lysine, phenylalanine) and noncanonical (e.g., beta-alanine, citrulline, ornithine). These are available in their uniform or specifically labeled (with  $^{13}\text{C}$ ,  $^{15}\text{N}$ , D, and/or  $^{18}\text{O}$ ) forms, in research or MPT grade.

Catalog No.	Description	Unit Size
DLM-7476	ADMA-HCl·XH <sub>2</sub> O (2,3,3,4,4,5,5-D <sub>7</sub> , 98%) (asymmetric dimethylarginine) (may be hydrate) CP 98%	5 mg
CLM-8755	β-Alanine (3- $^{13}\text{C}$ , 99%)	Please inquire
CLM-8756	β-Alanine ( $^{13}\text{C}_3$ , 99%)	Please inquire
NLM-1656	β-Alanine ( $^{15}\text{N}$ , 98%)	0.25 g
CNLM-3440	β-Alanine (3- $^{13}\text{C}$ , 99%; $^{15}\text{N}$ , 98%)	Please inquire
CNLM-8457	β-Alanine (1,2- $^{13}\text{C}_2$ , 99%; $^{15}\text{N}$ , 98%)	Please inquire
CNLM-3946	β-Alanine ( $^{13}\text{C}_3$ , 98%; $^{15}\text{N}$ , 96-99%)	0.25 g
CLM-1655	D-Alanine (1- $^{13}\text{C}$ , 99%)	Please inquire
CLM-2495	D-Alanine (3- $^{13}\text{C}$ , 99%)	Please inquire
CLM-10963	D-Alanine ( $^{13}\text{C}_3$ , 99%)	Please inquire
DLM-7326	D-Alanine (D <sub>7</sub> , 98%) <5% L	Please inquire
NLM-6762	D-Alanine ( $^{15}\text{N}$ , 98%)	Please inquire
NLM-3289	D-Alanine, N-acetyl ( $^{15}\text{N}$ , 98%)	Please inquire
CLM-705	DL-Alanine (1- $^{13}\text{C}$ , 99%)	1 g
CLM-115	DL-Alanine (2- $^{13}\text{C}$ , 99%)	0.25 g, 0.5 g
CLM-707	DL-Alanine (3- $^{13}\text{C}$ , 99%)	0.5 g, 1 g
CLM-4514	DL-Alanine ( $^{13}\text{C}_3$ , 98%)	Please inquire
DLM-2760	DL-Alanine (2-D, 98%)	Please inquire
DLM-176	DL-Alanine (3,3,3-D <sub>3</sub> , 98%)	1 g
DLM-1276	DL-Alanine (2,3,3,3-D <sub>4</sub> , 97-98%)	1 g
NLM-706	DL-Alanine ( $^{15}\text{N}$ , 98%)	1 g
CDLM-8650	DL-Alanine (3- $^{13}\text{C}$ , 99%; 2-D, 96%)	Please inquire
CLM-116	L-Alanine (1- $^{13}\text{C}$ , 99%)	0.5 g, 1 g
CLM-2016	L-Alanine (2- $^{13}\text{C}$ , 99%)	0.1 g, 0.25 g, 0.5 g
CLM-117	L-Alanine (3- $^{13}\text{C}$ , 99%)	0.5 g, 1 g
CLM-2734	L-Alanine (2,3- $^{13}\text{C}_2$ , 99%)	0.25 g, 0.5 g
CLM-2184-H	L-Alanine ( $^{13}\text{C}_3$ , 99%)	0.1 g, 0.25 g, 0.5 g
DLM-3101	L-Alanine (2-D, 96-98%)	Please inquire
DLM-248	L-Alanine (3,3,3-D <sub>3</sub> , 99%)	1 g
DLM-250	L-Alanine (2,3,3,3-D <sub>4</sub> , 98%)	0.1 g, 1 g
DLM-251	L-Alanine (D <sub>7</sub> , 98%)	1 g
NLM-454	L-Alanine ( $^{15}\text{N}$ , 98%)	0.5 g, 1 g
OLM-7460	L-Alanine ( $^{18}\text{O}_2$ , 90%)	Please inquire
CDLM-8649	L-Alanine (3- $^{13}\text{C}$ , 99%; 2-D, 96%)	1 g
CDLM-3439	L-Alanine (3- $^{13}\text{C}$ , 99%; 3,3,3-D <sub>3</sub> , 98%)	Please inquire
CNLM-6993	L-Alanine (1- $^{13}\text{C}$ , 99%; $^{15}\text{N}$ , 98%)	0.25 g
CNLM-3594	L-Alanine (2- $^{13}\text{C}$ , 99%; $^{15}\text{N}$ , 98%)	0.25 g
CNLM-534-H	L-Alanine ( $^{13}\text{C}_3$ , 99%; $^{15}\text{N}$ , 99%)	0.1 g, 0.25 g, 0.5 g
DNLM-7178	L-Alanine (2,3,3,3-D <sub>4</sub> , 98%; $^{15}\text{N}$ , 98%)	0.25 g, 0.5 g
CDNLM-6800	L-Alanine ( $^{13}\text{C}_3$ , 97-99%; D <sub>4</sub> , 97-99%; $^{15}\text{N}$ , 97-99%)	0.25 g
CNLM-10424	β-N-Methylamino-L-alanine ( $^{13}\text{C}_3$ , 99%; $^{15}\text{N}_2$ , 98%) Patent No.: US 11,370,812 B2	0.01 g, 1.2 mL
ULM-10493	β-N-Methylamino-L-alanine-HCl (unlabeled) CP 97%	Please inquire

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.

For research use only. Not for use in diagnostic procedures.

## Amino Acids and Their Derivatives (continued)

Catalog No.	Description	Unit Size
DLM-9799	DL-2-Aminoadipic acid (2,5,5-D <sub>3</sub> , 98%)	0.1 g, 0.25 g
CLM-1541	4-Aminobenzoic acid (PABA) (ring- <sup>13</sup> C <sub>6</sub> , 99%)	Please inquire
DLM-9802	DL-2-Aminobutyric acid (D <sub>6</sub> , 98%)	Please inquire
CLM-8666	γ-Aminobutyric acid (GABA) ( <sup>13</sup> C <sub>4</sub> , 97-99%)	0.05 g, 0.1 g
DLM-7760	γ-Aminobutyric acid (GABA) (2,2,3,3,4,4-D <sub>6</sub> , 98%)	Please inquire
CLM-535	5-Aminolevulinic acid·HCl (4- <sup>13</sup> C, 99%)	0.05 g
CLM-1371	5-Aminolevulinic acid·HCl (5- <sup>13</sup> C, 99%) CP 96%	0.05 g, 0.1 g
CLM-701	Anthranilic acid (ring- <sup>13</sup> C <sub>6</sub> , 99%)	0.1 g, 0.25 g
NLM-3294	Anthranilic acid ( <sup>15</sup> N, 98%)	0.5 g
CLM-2070	L-Arginine·HCl (guanido- <sup>13</sup> C, 99%)	0.5 g
CLM-1268	L-Arginine·HCl (1- <sup>13</sup> C, 99%)	0.1 g
CLM-2051	L-Arginine·HCl (1,2- <sup>13</sup> C <sub>2</sub> , 99%)	0.1 g
CLM-2265-H	L-Arginine·HCl ( <sup>13</sup> C <sub>6</sub> , 99%)	0.05 g, 0.1 g, 0.25 g, 0.5 g, 1 g
DLM-6038	L-Arginine·HCl (4,4,5,5-D <sub>4</sub> , 94%) <5% D	Please inquire
DLM-541	L-Arginine·HCl (D <sub>7</sub> , 98%)	0.1 g
NLM-1267	L-Arginine·HCl (α- <sup>15</sup> N, 98%)	Please inquire
NLM-395	L-Arginine·HCl (guanido- <sup>15</sup> N <sub>2</sub> , 98%)	0.5 g, 1 g
NLM-396	L-Arginine·HCl ( <sup>15</sup> N <sub>4</sub> , 98%)	0.1 g
CNLM-7819	L-Arginine·HCl (1- <sup>13</sup> C, 99%; α- <sup>15</sup> N, 98%)	Please inquire
CNLM-11110	L-Arginine·HCl (1,2,3,4,5- <sup>13</sup> C <sub>5</sub> , 99%; α,ε- <sup>15</sup> N <sub>2</sub> , 98%)	Please inquire
CNLM-539-H	L-Arginine·HCl ( <sup>13</sup> C <sub>6</sub> , 99%; <sup>15</sup> N <sub>4</sub> , 99%)	0.05 g, 0.1 g, 0.25 g, 0.5 g, 1 g
DNLM-7543	L-Arginine·HCl (D <sub>7</sub> , 98%; <sup>15</sup> N <sub>4</sub> , 98%)	0.25 g
CDNLM-6801	L-Arginine·HCl ( <sup>13</sup> C <sub>6</sub> , 97-99%; D <sub>7</sub> , 97-99%; <sup>15</sup> N <sub>4</sub> , 97-99%)	0.25 g
ULM-8347	L-Arginine·HCl (unlabeled)	0.05 g, 0.1 g
CNLM-9007-CA	Argininosuccinic acid barium salt·2H <sub>2</sub> O (arginine- <sup>13</sup> C <sub>6</sub> , 99%; <sup>15</sup> N <sub>4</sub> , 99%) CP 90%	0.1 mg, 0.5 mg
ULM-9008-CA	Argininosuccinic acid barium salt·3H <sub>2</sub> O (unlabeled) CP 90%	0.1 mg
CLM-8699-H	L-Asparagine·H <sub>2</sub> O ( <sup>13</sup> C <sub>4</sub> , 99%)	0.05 g
DLM-6844	L-Asparagine·H <sub>2</sub> O (2,3,3-D <sub>3</sub> , 94%)	0.1 g
NLM-120	L-Asparagine·H <sub>2</sub> O (amide- <sup>15</sup> N, 98%)	0.25 g, 0.5 g
NLM-3286	L-Asparagine·H <sub>2</sub> O ( <sup>15</sup> N <sub>2</sub> , 98%)	0.25 g, 0.5 g
CNLM-7818	L-Asparagine·H <sub>2</sub> O (1,4- <sup>13</sup> C <sub>2</sub> , 99%; α- <sup>15</sup> N, 98%)	0.25 g
CNLM-3819-H	L-Asparagine·H <sub>2</sub> O ( <sup>13</sup> C <sub>4</sub> , 99%; <sup>15</sup> N <sub>2</sub> , 99%)	0.1 g, 0.25 g, 0.5 g
DNLM-6932	L-Asparagine·H <sub>2</sub> O (2,3,3-D <sub>3</sub> , 98%; <sup>15</sup> N <sub>2</sub> , 98%)	0.25 g
CDNLM-6802	L-Asparagine·H <sub>2</sub> O ( <sup>13</sup> C <sub>4</sub> , 97-99%; D <sub>3</sub> , 97-99%; <sup>15</sup> N <sub>2</sub> , 97-99%)	0.25 g
CLM-865	DL-Aspartic acid (3- <sup>13</sup> C, 99%)	Please inquire
CLM-518	DL-Aspartic acid (4- <sup>13</sup> C, 99%)	0.25 g, 0.5 g, 1 g
DLM-832	DL-Aspartic acid (2,3,3-D <sub>3</sub> , 98%)	1 g
DLM-8599	DL-Aspartic acid, N-acetyl (aspartate-2,3,3-D <sub>3</sub> , 97%)	Please inquire
CLM-3616	L-Aspartic acid (1- <sup>13</sup> C, 99%)	Please inquire
CLM-3617	L-Aspartic acid (2- <sup>13</sup> C, 99%)	Please inquire
CLM-627	L-Aspartic acid (3- <sup>13</sup> C, 98-99%)	0.05 g, 0.1 g, 0.25 g
CLM-519	L-Aspartic acid (4- <sup>13</sup> C, 99%)	Please inquire
CLM-4455	L-Aspartic acid (1,4- <sup>13</sup> C <sub>2</sub> , 99%)	0.5 g
CLM-1801-H	L-Aspartic acid ( <sup>13</sup> C <sub>4</sub> , 99%)	0.1 mg, 0.1 g, 0.25 g, 0.5 g, 1 g
DLM-546	L-Aspartic acid (2,3,3-D <sub>3</sub> , 98%)	0.1 g, 0.25 g
NLM-718	L-Aspartic acid ( <sup>15</sup> N, 98%)	0.5 g, 1 g
CNLM-7817	L-Aspartic acid (1,4- <sup>13</sup> C <sub>2</sub> , 99%; <sup>15</sup> N, 98%)	0.25 g
CNLM-544-H	L-Aspartic acid ( <sup>13</sup> C <sub>4</sub> , 99%; <sup>15</sup> N, 99%)	0.25 g, 0.5 g, 1 g
DNLM-6931	L-Aspartic acid (2,3,3-D <sub>3</sub> , 98%; <sup>15</sup> N, 98%)	0.25 g, 0.5 g

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.  
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Catalog No.	Description	Unit Size
CDNLM-6803	L-Aspartic acid ( $^{13}\text{C}_4$ , 97-99%; $\text{D}_3$ , 97-99%; $^{15}\text{N}$ , 97-99%)	0.25 g
ULM-8676	L-Aspartic acid (unlabeled)	0.1 mg, 0.1 g
CNLM-9461	L-Azidohomoalanine-HCl ( $1,2,3,4\text{-}^{13}\text{C}_4$ ; $2,4\text{-}^{15}\text{N}_2$ , 98%)	0.05 g, 0.1 g
ULM-9460	L-Azidohomoalanine-HCl (unlabeled)	0.05 g, 0.1 g
CLM-6574	1,4-Butanediamine (putrescine) ( $^{13}\text{C}_4$ , 98%)	0.1 g
DLM-6573	1,4-Butanediamine (putrescine) ( $1,1,2,2,3,3,4,4\text{-D}_8$ , 98%)	0.1 g
CNLM-10625	3-Chlorotyrosine-HCl ( $^{13}\text{C}_9$ , 98%; $^{15}\text{N}$ , 98%) CP 95%	1 mg
CLM-4899	L-Citrulline (ureido- $^{13}\text{C}$ , 99%)	0.1 g
CLM-8653	L-Citrulline ( $1,2,3,4,5\text{-}^{13}\text{C}_5$ , 98%)	Please inquire
DLM-3860	L-Citrulline ( $5,5\text{-D}_2$ , 98%)	Please inquire
DLM-6039	L-Citrulline ( $4,4,5,5\text{-D}_4$ , 95%)	0.01 g, 5 mg
DLM-10776	L-Citrulline ( $2,3,3,4,4,5,5\text{-D}_7$ , 98%)	Please inquire
NLM-6850	L-Citrulline (ureido- $^{15}\text{N}$ , 98%)	Please inquire
CDLM-7879	L-Citrulline (ureido- $^{13}\text{C}$ , 99%; $5,5\text{-D}_2$ , 98%)	Please inquire
CDLM-8808	L-Citrulline (ureido- $^{13}\text{C}$ , 99%; $3,3,4\text{-D}_3$ , 98%)	Please inquire
CDLM-7139	L-Citrulline ( $5\text{-}^{13}\text{C}$ , 99%; $4,4,5,5\text{-D}_4$ , 95%)	Please inquire
DLM-3653	Creatinine ( <i>N</i> -methyl- $\text{D}_3$ , 98%)	0.1 mg, 0.1 g
ULM-10966	Creatinine (unlabeled)	0.1 mg
CDLM-4211	Cycloleucine (carboxyl- $^{13}\text{C}$ , 99%; $2,2,5,5\text{-D}_4$ , 96%)	0.25 g
DLM-6108	DL-Cystathionine ( $3,3,4,4\text{-D}_4$ , 98%)	0.01 g, 0.05 g
CLM-3790	DL-Cysteine ( $1\text{-}^{13}\text{C}$ , 99%)	Please inquire
DLM-899	DL-Cysteine ( $3,3\text{-D}_2$ , 98%)	0.5 g
CLM-404	DL-Cysteine, <i>S</i> -benzyl ( $1\text{-}^{13}\text{C}$ , 99%)	0.25 g
CLM-3852	L-Cysteine ( $1\text{-}^{13}\text{C}$ , 99%)	0.5 g
CLM-1868	L-Cysteine ( $3\text{-}^{13}\text{C}$ , 99%)	0.25 g
CLM-4320-H	L-Cysteine ( $^{13}\text{C}_3$ , 99%)	0.1 g
DLM-769	L-Cysteine ( $3,3\text{-D}_2$ , 98%)	0.1 g
DLM-6901	L-Cysteine ( $2,3,3\text{-D}_3$ , 98%)	0.1 g
NLM-2295	L-Cysteine ( $^{15}\text{N}$ , 98%)	0.25 g
CNLM-7815	L-Cysteine ( $1\text{-}^{13}\text{C}$ , 99%; $^{15}\text{N}$ , 98%)	Please inquire
CNLM-3871-H	L-Cysteine ( $^{13}\text{C}_3$ , 99%; $^{15}\text{N}$ , 99%)	0.1 g, 0.25 g
DNLM-6902	L-Cysteine ( $2,3,3\text{-D}_3$ , 98%; $^{15}\text{N}$ , 98%)	0.25 g
CDNLM-6809	L-Cysteine ( $^{13}\text{C}_3$ , 97-99%; $\text{D}_3$ , 97-99%; $^{15}\text{N}$ , 97-99%)	0.25 g
CNLM-7579	L-Cysteine, <i>N</i> -acetyl (cysteine- $^{13}\text{C}_3$ , 97-99%; $^{15}\text{N}$ , 97-99%) CP 95%	Please inquire
CLM-2182	L-Cysteine, <i>S</i> -benzyl ( $3\text{-}^{13}\text{C}$ , 99%)	0.1 g
DLM-2942	L-Cysteine, <i>S</i> -methyl ( <i>S</i> -methyl- $\text{D}_3$ , 98%) CP 97%	0.25 g
NLM-3914	L-Cysteine, <i>S</i> - <i>P</i> -mebz ( $^{15}\text{N}$ , 98%)	0.1 g
DLM-8738	<i>S</i> -sulfo-DL-Cysteine ( $2,3,3\text{-D}_3$ , 99%)	Please inquire
DLM-1000	DL-Cystine ( $3,3,3',3'\text{-D}_4$ , 98%)	1 g
NLM-1668	DL-Cystine ( $^{15}\text{N}_2$ , 95%) CP 97%	Please inquire
CLM-520	L-Cystine ( $3,3'\text{-}^{13}\text{C}_2$ , 99%)	0.25 g
DLM-9812	L-Cystine ( $3,3,3',3'\text{-D}_4$ , 98%)	0.5 g
NLM-3818	L-Cystine ( $^{15}\text{N}_2$ , 98%)	0.25 g
CNLM-4244-H	L-Cystine ( $^{13}\text{C}_6$ , 99%; $^{15}\text{N}_2$ , 99%)	Please inquire
CDNLM-8659	L-Cystine ( $^{13}\text{C}_6$ , 98%; $\text{D}_6$ , 98%; $^{15}\text{N}_2$ , 98%) CP 95%	Please inquire
CLM-7401	L-Dihydroxyphenylalanine (L-Dopa) ( $1\text{-}^{13}\text{C}$ , 99%)	0.1 g
CLM-1007	L-Dihydroxyphenylalanine (L-Dopa) (ring- $^{13}\text{C}_6$ , 99%)	0.1 g
CLM-7824	L-Dihydroxyphenylalanine (L-Dopa) ( $1\text{-}^{13}\text{C}$ , ring- $^{13}\text{C}_6$ , 99%)	0.05 g
DLM-2084	L-Dihydroxyphenylalanine (L-Dopa) (ring- $\text{D}_3$ , 98%)	0.25 g, 1 g
DLM-8516	<i>N,N</i> -Dimethylglycine-HCl ( $\text{D}_6$ , 99%)	Please inquire
CLM-7254	<i>O,O'</i> -Dityrosine (ring- $^{13}\text{C}_{12}$ , 99%)	0.1 mg

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## Amino Acids and Their Derivatives (continued)

Catalog No.	Description	Unit Size
CLM-3632	DL-Glutamic acid (3- <sup>13</sup> C, 99%)	Please inquire
DLM-335	DL-Glutamic acid (2,4,4-D <sub>3</sub> , 98%)	1 g
DLM-357	DL-Glutamic acid (2,3,3,4,4-D <sub>5</sub> , 97%)	0.25 g
CLM-3721	DL-Glutamic acid·H <sub>2</sub> O (1- <sup>13</sup> C, 99%)	1 g
CLM-674	L-Glutamic acid (1- <sup>13</sup> C, 99%)	1 g
CLM-2474	L-Glutamic acid (2- <sup>13</sup> C, 99%)	Please inquire
CLM-4742	L-Glutamic acid (3- <sup>13</sup> C, 99%)	Please inquire
CLM-2431	L-Glutamic acid (4- <sup>13</sup> C, 98-99%)	Please inquire
CLM-613	L-Glutamic acid (5- <sup>13</sup> C, 99%)	0.1 g
CLM-2024	L-Glutamic acid (1,2- <sup>13</sup> C <sub>2</sub> , 99%)	0.25 g
CLM-3646	L-Glutamic acid (3,4- <sup>13</sup> C <sub>2</sub> , 99%)	0.25 g
CLM-1800-H	L-Glutamic acid ( <sup>13</sup> C <sub>5</sub> , 99%)	0.1 mg, 0.25 g, 0.5 g, 1 g
DLM-3725	L-Glutamic acid (2,4,4-D <sub>3</sub> , 97-98%)	0.5 g
DLM-556	L-Glutamic acid (2,3,3,4,4-D <sub>5</sub> , 97-98%)	0.05 g, 0.1 g
NLM-135	L-Glutamic acid ( <sup>15</sup> N, 98%)	0.5 g, 1 g
CNLM-7812	L-Glutamic acid (1- <sup>13</sup> C, 99%; <sup>15</sup> N, 98%)	0.25 g
CNLM-554-H	L-Glutamic acid ( <sup>13</sup> C <sub>5</sub> , 99%; <sup>15</sup> N, 99%)	0.25 g, 0.5 g, 1 g
DNLM-6996	L-Glutamic acid (2,3,3,4,4-D <sub>5</sub> , 98%; <sup>15</sup> N, 98%)	0.25 g, 0.5 g
CDNLM-6804	L-Glutamic acid ( <sup>13</sup> C <sub>5</sub> , 97-99%; D <sub>5</sub> , 97-99%; <sup>15</sup> N, 97-99%)	0.25 g
ULM-8675	L-Glutamic acid (unlabeled)	0.1 mg
CLM-6664	L-Glutamic acid, <i>N</i> -acetyl (glutamate- <sup>13</sup> C <sub>5</sub> , 97-99%)	Please inquire
OLM-8028	L-Glutamic acid-HCl ( <sup>17</sup> O <sub>4</sub> , ~30%)	Please inquire
CLM-3612	L-Glutamine (1- <sup>13</sup> C, 99%)	1 g
CLM-3613	L-Glutamine (2- <sup>13</sup> C, 99%)	Please inquire
CLM-770	L-Glutamine (4- <sup>13</sup> C, 99%)	Please inquire
CLM-1166	L-Glutamine (5- <sup>13</sup> C, 99%)	0.25 g
CLM-2001	L-Glutamine (1,2- <sup>13</sup> C <sub>2</sub> , 99%)	0.1 g
CLM-3641	L-Glutamine (3,4- <sup>13</sup> C <sub>2</sub> , 99%)	Please inquire
CLM-1822-H	L-Glutamine ( <sup>13</sup> C <sub>5</sub> , 99%)	0.1 mg, 0.01 g, 0.1 g, 0.25 g, 0.5 g, 1 g
DLM-1826	L-Glutamine (2,3,3,4,4-D <sub>5</sub> , 97%)	0.1 g
NLM-1016	L-Glutamine (α- <sup>15</sup> N, 98%)	0.1 g, 1 g
NLM-557	L-Glutamine (amide- <sup>15</sup> N, 98%)	0.5 g, 1 g
NLM-1328	L-Glutamine ( <sup>15</sup> N <sub>2</sub> , 98%)	0.25 g
CNLM-7813	L-Glutamine (1- <sup>13</sup> C, 99%; α- <sup>15</sup> N, 98%)	Please inquire
CNLM-1275-H	L-Glutamine ( <sup>13</sup> C <sub>5</sub> , 99%; <sup>15</sup> N <sub>2</sub> , 99%)	0.1 g, 0.25 g, 0.5 g
DNLM-6997	L-Glutamine (2,3,3,4,4-D <sub>5</sub> , 97-98%; <sup>15</sup> N <sub>2</sub> , 97-98%)	0.25 g
CDNLM-6805	L-Glutamine ( <sup>13</sup> C <sub>5</sub> , 97-99%; D <sub>5</sub> , 97-99%; <sup>15</sup> N <sub>2</sub> , 97-99%)	0.25 g
CLM-422	Glycine (1- <sup>13</sup> C, 99%)	1 g, 5 g
CLM-136	Glycine (2- <sup>13</sup> C, 99%)	0.5 g, 1 g, 5 g
CLM-1017	Glycine ( <sup>13</sup> C <sub>2</sub> , 97-99%)	0.5 g, 1 g, 5 g
DLM-1674	Glycine (2,2-D <sub>2</sub> , 98%)	5 g
DLM-280	Glycine (D <sub>5</sub> , 98%)	5 g
DLM-280-80	Glycine (D <sub>5</sub> , 80%)	5 g
NLM-202	Glycine ( <sup>15</sup> N, 98%)	1 g, 5 g
CNLM-507	Glycine (1- <sup>13</sup> C, 99%; <sup>15</sup> N, 98%)	1 g
CNLM-508	Glycine (2- <sup>13</sup> C, 99%; <sup>15</sup> N, 98%)	0.5 g, 1 g
CNLM-1673-H	Glycine ( <sup>13</sup> C <sub>2</sub> , 99%; <sup>15</sup> N, 99%)	0.25 g, 0.5 g, 1 g
DNLM-6862	Glycine (2,2-D <sub>2</sub> , 98%; <sup>15</sup> N, 98%)	0.25 g, 0.5 g
CDNLM-6799	Glycine ( <sup>13</sup> C <sub>2</sub> , 97-99%; 2,2-D <sub>2</sub> , 97-99%; <sup>15</sup> N, 97-99%)	0.25 g
CLM-3777	Glycine, <i>N</i> -acetyl (2- <sup>13</sup> C, 99%)	1 g
CLM-10468	Glycine, <i>N</i> -benzoyl (hippuric acid) (ring- <sup>13</sup> C <sub>6</sub> , 99%)	0.01 g
DLM-7703	Glycine, <i>N</i> -benzoyl (hippuric acid) (benzoyl-D <sub>5</sub> , 98%)	0.1 g, 0.25 g
NLM-2377	Glycine, <i>N</i> -benzoyl (hippuric acid) ( <sup>15</sup> N, 98%)	0.1 g

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Catalog No.	Description	Unit Size
DLM-7248	Glycine, <i>N</i> -hexanoyl (2,2-D <sub>2</sub> , 98%)	Please inquire
CNLM-844	Glycine, <i>N</i> -hexanoyl ( <sup>13</sup> C <sub>2</sub> , 97-99%; <sup>15</sup> N, 97-99%) CP 95%	Please inquire
DLM-10483	Glycine, <i>N</i> -isovaleryl (isovaleryl-D <sub>9</sub> , 98%)	Please inquire
CNLM-9291	Glycine, <i>N</i> -isovaleryl (glycine- <sup>13</sup> C <sub>2</sub> , 99%; <sup>15</sup> N, 99%)	Please inquire
DLM-10822	Glycine, <i>N</i> -octanoyl (2,2-D <sub>2</sub> , 98%)	Please inquire
DLM-9677	Glycine, <i>N</i> -propionyl (2,2-D <sub>2</sub> , 98%)	Please inquire
CNLM-9292	Glycine, <i>N</i> -propionyl (glycine- <sup>13</sup> C <sub>2</sub> , 99%; <sup>15</sup> N, 99%)	Please inquire
CNLM-7175	Glycine·HCl, ethyl ester ( <sup>13</sup> C <sub>2</sub> , 98%; <sup>15</sup> N, 98%)	Please inquire
DLM-9998	Guanidinoacetic acid (2,2-D <sub>2</sub> , 97%)	Please inquire
CNLM-8300	Guanidinoacetic acid (1,2- <sup>13</sup> C <sub>2</sub> , 97-99%; 3- <sup>15</sup> N, 97-99%) CP 97%	0.1 mg
CLM-2636	DL-Histidine (ring-2- <sup>13</sup> C, 99%)	Please inquire
NLM-10595	DL-Histidine (α- <sup>15</sup> N, 98%)	Please inquire
NLM-4649	L-Histidine (ring-ε- <sup>15</sup> N, 98%) <5% D	Please inquire
NLM-4457	L-Histidine (ring-π- <sup>15</sup> N, 98%) <5% D	Please inquire
NLM-9585	L-Histidine (ring- <sup>15</sup> N <sub>2</sub> , 98%)	Please inquire
CLM-1512	L-Histidine·HCl·H <sub>2</sub> O (ring-2- <sup>13</sup> C, 99%)	0.1 g
CLM-2264	L-Histidine·HCl·H <sub>2</sub> O ( <sup>13</sup> C <sub>6</sub> , 97-99%) <5% D	0.05 g, 0.1 g, 0.25 g
DLM-7855	L-Histidine·HCl·H <sub>2</sub> O (ring-2,4-D <sub>2</sub> ; α,β,β-D <sub>3</sub> , 98%)	0.25 g
NLM-2245	L-Histidine·HCl·H <sub>2</sub> O (α- <sup>15</sup> N, 98%)	0.25 g
NLM-846	L-Histidine·HCl·H <sub>2</sub> O (ring-π- <sup>15</sup> N, 98%) <5% D	Please inquire
NLM-1513	L-Histidine·HCl·H <sub>2</sub> O ( <sup>15</sup> N <sub>3</sub> , 98%) <5% D	0.25 g
CNLM-758	L-Histidine·HCl·H <sub>2</sub> O ( <sup>13</sup> C <sub>6</sub> , 97-99%; <sup>15</sup> N <sub>3</sub> , 97-99%) <5% D	0.05 g, 0.1 g, 0.25 g
DNLM-7366	L-Histidine·HCl·H <sub>2</sub> O (D <sub>5</sub> , 98%; <sup>15</sup> N <sub>3</sub> , 98%)	0.25 g
CDNLM-6806	L-Histidine·HCl·H <sub>2</sub> O ( <sup>13</sup> C <sub>6</sub> , 97-99%; D <sub>5</sub> , 97-99%; <sup>15</sup> N <sub>3</sub> , 97-99%) CP 95%	0.25 g
DLM-8691	π-methyl-L-Histidine (methyl-D <sub>3</sub> , 98%)	0.05 g
DLM-2949	τ-methyl-L-Histidine (methyl-D <sub>3</sub> , 98%)	0.25 g
CNLM-4645	L-Homoarginine·HCl ( <sup>13</sup> C <sub>7</sub> , 98%; <sup>15</sup> N <sub>4</sub> , 98%)	10 mg
DLM-8259	DL-Homocysteine (3,3,4,4-D <sub>4</sub> , 98%)	0.1 g
CLM-8906	S-Adenosyl-L-homocysteine (SAH) (adenosine- <sup>13</sup> C <sub>10</sub> , 98%) CP 95%	0.1 mg
DLM-3619	DL-Homocystine (3,3,3',3',4,4,4',4'-D <sub>8</sub> , 98%)	0.1 g, 0.5 g, 1 g
NLM-2466	L-Homoserine ( <sup>15</sup> N, 95-99%) CP 97%	0.5 g
DLM-9778	<i>trans</i> -4-Hydroxy-L-proline (2,5,5-D <sub>3</sub> , 98%) CP 97%	Please inquire
DLM-10579	<i>trans</i> -4-Hydroxy-L-proline (3,3,4,5,6,-D <sub>5</sub> , 96%) contains up to 5% <i>cis</i>	Please inquire
CLM-1026	L-Isoleucine (1- <sup>13</sup> C, 99%)	0.5 g, 1 g
CLM-2248-H	L-Isoleucine ( <sup>13</sup> C <sub>6</sub> , 99%)	0.05 g, 0.1 g, 0.25 g
DLM-141	L-Isoleucine (D <sub>10</sub> , 98%)	0.1 g, 0.25 g
NLM-292	L-Isoleucine ( <sup>15</sup> N, 98%)	0.25 g, 1 g
CNLM-7810	L-Isoleucine (1- <sup>13</sup> C, 99%; <sup>15</sup> N, 98%)	Please inquire
CNLM-561-H	L-Isoleucine ( <sup>13</sup> C <sub>6</sub> , 99%; <sup>15</sup> N, 99%)	0.05 g, 0.1 g, 0.25 g
DNLM-7325	L-Isoleucine (D <sub>10</sub> , 98%; <sup>15</sup> N, 98%)	0.25 g
CDNLM-6807	L-Isoleucine ( <sup>13</sup> C <sub>6</sub> , 97-99%; D <sub>10</sub> , 97-99%; <sup>15</sup> N, 97-99%)	0.25 g
CLM-8742	L-allo-Isoleucine ( <sup>13</sup> C <sub>6</sub> , 97-99%)	Please inquire
DLM-1505	L-allo-Isoleucine (D <sub>10</sub> , 98%)	0.1 g
CNLM-8670	L-allo-Isoleucine ( <sup>13</sup> C <sub>6</sub> , 97-99%; <sup>15</sup> N, 97-99%)	Please inquire
CDNLM-8911	L-allo-Isoleucine ( <sup>13</sup> C <sub>6</sub> , 97-99%; D <sub>10</sub> , 97-99%; <sup>15</sup> N, 97-99%)	Please inquire
DLM-7374	Kynurenic acid (ring-D <sub>5</sub> , 98%)	Please inquire
DLM-7842	L-Kynurenine sulfate (ring-D <sub>4</sub> , 3,3-D <sub>2</sub> , 97%) CP 95%	5 mg, 10 mg
CLM-9884	L-Kynurenine sulfate·½H <sub>2</sub> O ( <sup>13</sup> C <sub>10</sub> , 99%)	0.1 mg
CLM-204	DL-Leucine (1- <sup>13</sup> C, 99%)	1 g
CLM-207	DL-Leucine (2- <sup>13</sup> C, 99%)	Please inquire
DLM-9423	DL-Leucine (D <sub>10</sub> , 98%)	0.25 g
NLM-355	DL-Leucine ( <sup>15</sup> N, 98%)	Please inquire
CNLM-8679	DL-Leucine (2- <sup>13</sup> C, 99%; <sup>15</sup> N, 98%)	Please inquire

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## Amino Acids and Their Derivatives (continued)

Catalog No.	Description	Unit Size
CLM-468	L-Leucine (1- <sup>13</sup> C, 99%)	1 g, 5 g
CLM-2014	L-Leucine (2- <sup>13</sup> C, 99%)	0.5 g, 1 g
CLM-3524	L-Leucine (1,2- <sup>13</sup> C <sub>2</sub> , 99%)	0.25 g
CLM-2262-H	L-Leucine ( <sup>13</sup> C <sub>6</sub> , 99%)	0.05 g, 0.1 g, 0.25 g
DLM-1259	L-Leucine (5,5,5-D <sub>3</sub> , 99%)	1 g, 5 g
DLM-4212	L-Leucine (isopropyl-D <sub>7</sub> , 98%)	1 g
DLM-567	L-Leucine (D <sub>10</sub> , 98%)	0.25 g
NLM-142	L-Leucine ( <sup>15</sup> N, 98%)	0.5 g, 1 g
OLM-2041	L-Leucine ( <sup>18</sup> O <sub>2</sub> , 94%)	0.25 g
CNLM-615	L-Leucine (1- <sup>13</sup> C, 99%; <sup>15</sup> N, 98%)	1 g
CNLM-615-95	L-Leucine (1- <sup>13</sup> C, 99%; <sup>15</sup> N, 93-95%)	1 g
CNLM-3450	L-Leucine (2- <sup>13</sup> C, 99%; <sup>15</sup> N, 98%)	0.5 g
CNLM-281-H	L-Leucine ( <sup>13</sup> C <sub>6</sub> , 99%; <sup>15</sup> N, 99%)	0.05 g, 0.1 g, 0.25 g
DNLM-4642	L-Leucine (D <sub>10</sub> , 98%; <sup>15</sup> N, 97%)	0.25 g, 0.5 g
CDNLM-6808	L-Leucine ( <sup>13</sup> C <sub>6</sub> , 97-99%; D <sub>10</sub> , 97-99%; <sup>15</sup> N, 97-99%)	0.25 g
ULM-8203	L-Leucine (unlabeled)	Please inquire
DLM-476	L-Leucine, N-acetyl (D <sub>10</sub> , 98%)	Please inquire
CLM-10684	L-Leucine·HCl (1- <sup>13</sup> C, 99%)	Please inquire
CLM-749	DL-Lysine·2HCl (1- <sup>13</sup> C, 99%)	Please inquire
DLM-8941	DL-Lysine·2HCl (4,4,5,5-D <sub>4</sub> , 96-98%)	Please inquire
NLM-1031	DL-Lysine·2HCl (ε- <sup>15</sup> N, 98%)	0.1 g
CNLM-3452	DL-Lysine·2HCl (1- <sup>13</sup> C, 99%; ε- <sup>15</sup> N, 99%)	Please inquire
CNLM-3453	DL-Lysine·2HCl (2- <sup>13</sup> C, 99%; ε- <sup>15</sup> N, 99%) CP 95%	0.1 g
NLM-1683	DL-Lysine·HCl·H <sub>2</sub> O (α- <sup>15</sup> N, 99%)	Please inquire
CLM-653	L-Lysine·2HCl (1- <sup>13</sup> C, 99%)	0.25 g, 0.5 g
CLM-632	L-Lysine·2HCl (6- <sup>13</sup> C, 99%)	0.25 g
CLM-2247-H	L-Lysine·2HCl ( <sup>13</sup> C <sub>6</sub> , 99%)	0.05 g, 0.1 g, 0.25 g, 0.5 g, 1 g
DLM-2640	L-Lysine·2HCl (4,4,5,5-D <sub>4</sub> , 96-98%)	0.1 g, 0.25 g, 0.5 g, 1 g
DLM-2641	L-Lysine·2HCl (3,3,4,4,5,5,6,6-D <sub>8</sub> , 98%)	0.25 g
DLM-570	L-Lysine·2HCl (D <sub>9</sub> , 98%)	0.1 g
NLM-143	L-Lysine·2HCl (α- <sup>15</sup> N, 98%)	0.25 g, 1 g
NLM-631	L-Lysine·2HCl (ε- <sup>15</sup> N, 98%)	0.5 g
NLM-1554	L-Lysine·2HCl ( <sup>15</sup> N <sub>2</sub> , 98%)	0.1 g
CNLM-7821	L-Lysine·2HCl (1- <sup>13</sup> C, 99%; ε- <sup>15</sup> N, 98%)	Please inquire
CNLM-3454	L-Lysine·2HCl (6- <sup>13</sup> C, 99%; ε- <sup>15</sup> N, 98%)	Please inquire
CNLM-291-H	L-Lysine·2HCl ( <sup>13</sup> C <sub>6</sub> , 99%; <sup>15</sup> N <sub>2</sub> , 99%)	0.05 g, 0.1 g, 0.25 g, 0.5 g, 1 g
DNLM-7545	L-Lysine·2HCl (D <sub>9</sub> , 98%; <sup>15</sup> N <sub>2</sub> , 98%)	0.25 g
CDNLM-6810	L-Lysine·2HCl ( <sup>13</sup> C <sub>6</sub> , 97-99%; D <sub>9</sub> , 97-99%; <sup>15</sup> N <sub>2</sub> , 97-99%)	0.25 g
ULM-8766	L-Lysine·2HCl (unlabeled)	0.1 mg, 0.05 g, 0.1 g
DLM-4731	L-Lysine, N-ε-carboxymethyl (4,4,5,5-D <sub>4</sub> , 96-98%)	Please inquire
CLM-7356	D-Methionine (1- <sup>13</sup> C, 99%) CP 96%	Please inquire
CLM-6191	DL-Methionine (1- <sup>13</sup> C, 99%)	Please inquire
DLM-10774	DL-Methionine (S-methyl-D <sub>3</sub> , 98%)	Please inquire
DLM-2933	DL-Methionine (3,3,4,4-D <sub>4</sub> , 98%)	Please inquire
CDNLM-8026	DL-Methionine ( <sup>13</sup> C <sub>5</sub> , 97-99%; D <sub>8</sub> , 97-99%; <sup>15</sup> N, 97-99%)	Please inquire
CLM-206	L-Methionine (methyl- <sup>13</sup> C, 99%)	1 g, 5 g, 10 g
CLM-3267	L-Methionine (1- <sup>13</sup> C, 99%)	0.25 g, 1 g
CLM-893-H	L-Methionine ( <sup>13</sup> C <sub>5</sub> , 99%)	0.05 g, 0.1 g, 0.25 g
DLM-431	L-Methionine (methyl-D <sub>3</sub> , 98%)	1 g, 5 g
DLM-6797	L-Methionine (2,3,3,4,4-D <sub>5</sub> ; methyl-D <sub>3</sub> , 98%)	0.1 g

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Catalog No.	Description	Unit Size
NLM-752	L-Methionine ( $^{15}\text{N}$ , 96-98%)	0.5 g, 1 g
CDLM-9289	L-Methionine (methyl- $^{13}\text{C}$ , 99%; methyl- $\text{D}_3$ , 98%)	0.25 g, 1 g
CDLM-760	L-Methionine ( $1\text{-}^{13}\text{C}$ , 99%; methyl- $\text{D}_3$ , 98%)	Please inquire
CDLM-8885	L-Methionine (methyl- $^{13}\text{CH}_3$ , 99%; 2,3,3,4,4- $\text{D}_5$ , 98%)	0.5 g, 1 g
CNLM-7807	L-Methionine ( $1\text{-}^{13}\text{C}$ , 99%; $^{15}\text{N}$ , 98%)	0.25 g
CNLM-9774	L-Methionine ( $1,2,3,4\text{-}^{13}\text{C}_4$ , 99%; $^{15}\text{N}$ , 98%)	Please inquire
CNLM-759-H	L-Methionine ( $^{13}\text{C}_5$ , 99%; $^{15}\text{N}$ , 99%)	0.05 g, 0.1 g, 0.25 g
DNLM-7179	L-Methionine ( $\text{D}_8$ , 98%; $^{15}\text{N}$ , 98%)	0.25 g
CDNLM-6798	L-Methionine ( $^{13}\text{C}_5$ , 97-99%; $\text{D}_8$ , 97-99%; $^{15}\text{N}$ , 97-99%)	Please inquire
CLM-11193	S-Adenosyl-L-methionine (SAM), sulfate salt (ribose- $^{13}\text{C}_5$ , 98%) CP 95%	Please inquire
CLM-8002	L-Methionine sulfone ( $1\text{-}^{13}\text{C}$ , 99%)	Please inquire
DLM-11341	L-3-O-Methyl-dopa- $\text{H}_2\text{O}$ (3-OMD) (methoxy- $\text{D}_3$ , 98%)	Please inquire
DLM-10673	3-Methylcrotonylglycine (glycine-2,2- $\text{D}_2$ , 98%)	Please inquire
CNLM-8111	3-Methylcrotonylglycine (glycine- $^{13}\text{C}_2$ , 98%; $^{15}\text{N}$ , 98%)	Please inquire
CLM-1036	L-Ornithine-HCl ( $1,2\text{-}^{13}\text{C}_2$ , 99%)	0.1 g
CLM-4724-H	L-Ornithine-HCl ( $^{13}\text{C}_5$ , 99%)	0.1 g
DLM-4261	L-Ornithine-HCl ( $5,5\text{-}\text{D}_2$ , 98%)	0.25 g
DLM-6046	L-Ornithine-HCl ( $4,4,5,5\text{-}\text{D}_4$ , 95%)	Please inquire
DLM-2969	L-Ornithine-HCl ( $3,3,4,4,5,5\text{-}\text{D}_6$ , 98%)	0.1 g, 0.25 g
DLM-6669	L-Ornithine-HCl ( $\text{D}_7$ , 98%)	0.25 g
NLM-2212	L-Ornithine-HCl ( $\alpha\text{-}^{15}\text{N}$ , 98%)	Please inquire
NLM-2174	L-Ornithine-HCl ( $5\text{-}^{15}\text{N}$ , 98%)	Please inquire
NLM-3610	L-Ornithine-HCl ( $^{15}\text{N}_2$ , 98%)	0.25 g
CDLM-3873	L-Ornithine-HCl ( $5\text{-}^{13}\text{C}$ , 99%; $4,4,5,5\text{-}\text{D}_4$ , 95%)	Please inquire
CNLM-7578-H	L-Ornithine-HCl ( $^{13}\text{C}_5$ , 99%; $^{15}\text{N}_2$ , 99%)	Please inquire
DLM-4526	D-Phenylalanine (ring- $\text{D}_5$ , 97%)	Please inquire
CLM-761	DL-Phenylalanine ( $1\text{-}^{13}\text{C}$ , 99%)	Please inquire
CLM-7486	DL-Phenylalanine (ring- $^{13}\text{C}_6$ , 99%)	Please inquire
DLM-2983	DL-Phenylalanine (2- $\text{D}$ , 98%)	1 g
DLM-2986	DL-Phenylalanine (ring- $\text{D}_5$ , 98%)	1 g
NLM-3434	DL-Phenylalanine ( $^{15}\text{N}$ , 98%)	Please inquire
CLM-762	L-Phenylalanine ( $1\text{-}^{13}\text{C}$ , 99%)	1 g
CLM-1631	L-Phenylalanine ( $2\text{-}^{13}\text{C}$ , 99%) CP 97%	0.05 g, 0.25 g
CLM-1053	L-Phenylalanine ( $3\text{-}^{13}\text{C}$ , 99%)	0.1 g, 0.25 g
CLM-1055	L-Phenylalanine (ring- $^{13}\text{C}_6$ , 99%)	0.25 g, 1 g
CLM-2250-H	L-Phenylalanine ( $^{13}\text{C}_9$ , 99%)	0.25 g, 0.5 g, 1 g
DLM-2984	L-Phenylalanine (2- $\text{D}$ , 95%)	0.5 g
DLM-2985	L-Phenylalanine ( $3,3\text{-}\text{D}_2$ , 98%)	0.1 g, 0.5 g, 1 g
DLM-1258	L-Phenylalanine (ring- $\text{D}_5$ , 98%)	1 g, 5 g
DLM-372	L-Phenylalanine ( $\text{D}_8$ , 98%)	1 g
NLM-108	L-Phenylalanine ( $^{15}\text{N}$ , 98%)	0.5 g, 1 g
CNLM-7611	L-Phenylalanine ( $2,3\text{-}^{13}\text{C}_2$ , 99%; $^{15}\text{N}$ , 98%)	Please inquire
CNLM-575-H	L-Phenylalanine ( $^{13}\text{C}_9$ , 99%; $^{15}\text{N}$ , 99%)	0.1 mg, 0.1 g, 0.25 g, 0.5 g, 1 g
DNLM-7180	L-Phenylalanine ( $\text{D}_8$ , 98%; $^{15}\text{N}$ , 98%)	0.25 g, 0.5 g
CDNLM-11149	L-Phenylalanine ( $4'\text{-}^{13}\text{C}$ , 99%; $2,3,3,2',3',5',6'\text{-}\text{D}_7$ , 98%; $^{15}\text{N}$ , 98%)	0.1 g
CDNLM-12287	L-Phenylalanine ( $3',5'\text{-}^{13}\text{C}_2$ , 99%; $2,3,3,2',4',6'\text{-}\text{D}_6$ , 98%; $^{15}\text{N}$ , 98%)	Please inquire
CDNLM-6811	L-Phenylalanine ( $^{13}\text{C}_9$ , 97-99%; $\text{D}_8$ , 97-99%; $^{15}\text{N}$ , 97-99%)	0.25 g
ULM-8205	L-Phenylalanine (unlabeled)	0.1 mg
DLM-9715	3-Phenylpropionylglycine ( $2,2\text{-}\text{D}_2$ , 98%)	Please inquire
CNLM-9169	Pipecolic acid (peperidine 2-carboxylic acid) ( $^{13}\text{C}_6$ , 98%; $^{15}\text{N}$ , 98%)	Please inquire

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## Amino Acids and Their Derivatives (continued)

Catalog No.	Description	Unit Size
CLM-2479	DL-Proline (1- <sup>13</sup> C, 99%)	Please inquire
DLM-2657	DL-Proline (2,3,3,4,4,5,5-D <sub>7</sub> , 97-98%)	0.25 g
CLM-510	L-Proline (1- <sup>13</sup> C, 99%)	0.25 g
CLM-2260-H	L-Proline ( <sup>13</sup> C <sub>5</sub> , 99%)	0.1 g, 0.25 g, 0.5 g
DLM-10775	L-Proline (2,5,5-D <sub>3</sub> , 98%)	Please inquire
DLM-487	L-Proline (D <sub>7</sub> , 97-98%)	0.1 g, 0.25 g
NLM-835	L-Proline ( <sup>15</sup> N, 98%)	0.25 g, 0.5 g
CNLM-7822	L-Proline (1- <sup>13</sup> C, 99%; <sup>15</sup> N, 98%)	Please inquire
CNLM-436-H	L-Proline ( <sup>13</sup> C <sub>5</sub> , 99%; <sup>15</sup> N, 99%)	0.1 g, 0.25 g, 0.5 g
DNLM-7562	L-Proline (D <sub>7</sub> , 98%; <sup>15</sup> N, 98%)	0.25 g
CDNLM-6812	L-Proline ( <sup>13</sup> C <sub>5</sub> , 97-99%; D <sub>7</sub> , 97-99%; <sup>15</sup> N, 97-99%)	0.25 g
ULM-8333	L-Proline (unlabeled)	0.05 g, 0.1 g
CLM-7944	3-(3-Methyl-1H-pyrazol-5-yl)propanoic acid (MPP) (methyl- <sup>13</sup> C, pyrazolyl- <sup>13</sup> C <sub>3</sub> , 3- <sup>13</sup> C, 99%)	0.1 mg
DLM-11082	DL-Pyroglutamic acid (3,3,4,4,5-D <sub>5</sub> , 98%)	Please inquire
DLM-6874	Sarcosine-HCl (N-methylglycine-HCl) (methyl-D <sub>3</sub> , 98%)	0.1 g, 0.25 g
CNLM-9699	Sarcosine-HCl (N-methylglycine-HCl) ( <sup>13</sup> C <sub>3</sub> , 99%; <sup>15</sup> N, 98%)	Please inquire
CLM-1075	DL-Serine (1- <sup>13</sup> C, 99%)	Please inquire
CLM-496	DL-Serine (2- <sup>13</sup> C, 99%)	Please inquire
CLM-497	DL-Serine (3- <sup>13</sup> C, 99%)	Please inquire
DLM-1073	DL-Serine (2,3,3-D <sub>3</sub> , 98%)	1 g
NLM-1531	DL-Serine ( <sup>15</sup> N, 98%)	Please inquire
CNLM-4207	DL-Serine ( <sup>13</sup> C <sub>3</sub> , 98%; <sup>15</sup> N, 98%)	Please inquire
CLM-1573	L-Serine (1- <sup>13</sup> C, 99%)	0.25 g
CLM-2013	L-Serine (2- <sup>13</sup> C, 99%)	0.1 g
CLM-1572	L-Serine (3- <sup>13</sup> C, 99%)	0.1 g, 0.25 g
CLM-1574-H	L-Serine ( <sup>13</sup> C <sub>3</sub> , 99%)	0.1 g, 0.25 g, 0.5 g
DLM-161	L-Serine (3,3-D <sub>2</sub> , 98%)	0.1 g
DLM-582	L-Serine (2,3,3-D <sub>3</sub> , 98%)	0.1 g, 0.5 g
NLM-2036	L-Serine ( <sup>15</sup> N, 98%)	0.5 g, 1 g
OLM-9960	L-Serine (carboxyl- <sup>18</sup> O <sub>2</sub> , 95%)	Please inquire
CDLM-12299	L-Serine (2- <sup>13</sup> C, 99%; 2,3,3-D <sub>3</sub> , 97%) <3% D	Please inquire
CNLM-7814	L-Serine (1- <sup>13</sup> C, 99%; <sup>15</sup> N, 98%)	0.25 g
CNLM-474-H	L-Serine ( <sup>13</sup> C <sub>3</sub> , 99%; <sup>15</sup> N, 99%)	0.1 g, 0.25 g, 0.5 g
DNLM-6863	L-Serine (2,3,3-D <sub>3</sub> , 98%; <sup>15</sup> N, 98%)	0.25 g
CDNLM-6813	L-Serine ( <sup>13</sup> C <sub>3</sub> , 97-99%; D <sub>3</sub> , 97-99%; <sup>15</sup> N, 97-99%)	0.25 g
DLM-10873	L-Serine, N-acetyl (2,3,3,-D <sub>3</sub> , 98%)	Please inquire
CLM-3949	Sodium glutamate·XH <sub>2</sub> O ( <sup>13</sup> C <sub>5</sub> , 97-98%) may be hydrate	0.25 g
DLM-9713	N-Suberylglycine (2,2-D <sub>2</sub> , 98%) CP 97%	Please inquire
CNLM-8183	Suberylglycine (glycine- <sup>13</sup> C <sub>2</sub> , 98%; <sup>15</sup> N, 98%)	Please inquire
DLM-8057	Taurine (D <sub>4</sub> , 98%) CP 95%	0.1 g, 0.25 g
CLM-6622	Taurine (1,2- <sup>13</sup> C <sub>2</sub> , 98%)	0.25 g, 0.5 g
DLM-8057	Taurine (D <sub>4</sub> , 98%) CP 95%	0.1 g, 0.25 g
NLM-4472	Taurine ( <sup>15</sup> N, 98%)	Please inquire
CNLM-10253	Taurine ( <sup>13</sup> C <sub>2</sub> , 99%; <sup>15</sup> N, 98%)	0.01 g
CLM-447	L-Threonine (1- <sup>13</sup> C, 99%)	0.5 g
CLM-2261	L-Threonine ( <sup>13</sup> C <sub>4</sub> , 97-99%)	0.1 g, 0.25 g, 0.5 g
DLM-1693	L-Threonine (D <sub>5</sub> , 98%)	0.1 g
NLM-742	L-Threonine ( <sup>15</sup> N, 98%)	0.25 g, 0.5 g
CDLM-9307	L-Threonine (4- <sup>13</sup> C, 97%; 2,3-D <sub>2</sub> , 96-98%)	0.1 g, 0.5 g
CNLM-587	L-Threonine ( <sup>13</sup> C <sub>4</sub> , 97-99%; <sup>15</sup> N, 97-99%)	0.1 g, 0.25 g, 0.5 g
DNLM-7367	L-Threonine (D <sub>5</sub> , 97%; <sup>15</sup> N, 98%)	0.25 g, 0.5 g

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Catalog No.	Description	Unit Size
CDNLM-6814	L-Threonine ( $^{13}\text{C}_4$ , 97-99%; $\text{D}_5$ , 97-99%; $^{15}\text{N}$ , 97-99%)	0.25 g
ULM-8800	L-Threonine (unlabeled)	Please inquire
CLM-6725	L-Thyroxine (T4) (tyrosine-ring- $^{13}\text{C}_6$ , 99%) CP 90%	0.1 mg
CLM-8931	L-Thyroxine (T4) (ring- $^{13}\text{C}_{12}$ , 99%) CP 97%	0.1 mg
ULM-8184	L-Thyroxine (T4) (unlabeled)	0.2 mg
CNLM-8110	Tiglylglycine (glycine- $^{13}\text{C}_2$ , 98%; $^{15}\text{N}$ , 98%)	Please inquire
DLM-10522	D-Tryptophan (indole- $\text{D}_5$ , 98%)	Please inquire
CLM-778	L-Tryptophan ( $1\text{-}^{13}\text{C}$ , 99%)	0.25 g
CLM-1543	L-Tryptophan (indole- $2\text{-}^{13}\text{C}$ , 98%)	0.25 g
CLM-716	L-Tryptophan (indole- $3\text{-}^{13}\text{C}$ , 95-99%)	0.25 g
CLM-717	L-Tryptophan (indole- $4\text{-}^{13}\text{C}$ , 99%) CP 95%	Please inquire
CLM-4290-H	L-Tryptophan ( $^{13}\text{C}_{11}$ , 99%)	0.1 g
DLM-1092	L-Tryptophan (indole- $\text{D}_5$ , 98%)	0.5 g
DLM-6903	L-Tryptophan ( $\text{D}_8$ , 97-98%)	0.25 g
NLM-1695	L-Tryptophan ( $\alpha\text{-}^{15}\text{N}$ , 95-99%)	0.1 g
NLM-1208	L-Tryptophan (indole- $^{15}\text{N}$ , 98%)	0.25 g, 0.5 g
NLM-800	L-Tryptophan ( $^{15}\text{N}_2$ , 98%)	0.25 g, 0.5 g
CNLM-2475-H	L-Tryptophan ( $^{13}\text{C}_{11}$ , 99%; $^{15}\text{N}_2$ , 99%)	0.1 g
DNLM-6904	L-Tryptophan ( $\text{D}_8$ , 98%; $^{15}\text{N}_2$ , 98%)	0.25 g
CDNLM-6816	L-Tryptophan ( $^{13}\text{C}_{11}$ , 97-99%; $\text{D}_8$ , 97-99%; $^{15}\text{N}_2$ , 97-99%)	0.25 g
CLM-9097	3-bromo-L-Tyrosine (ring- $^{13}\text{C}_6$ , 99%)	0.01 g
CLM-7103	3-chloro-L-Tyrosine (ring- $^{13}\text{C}_6$ , 99%) CP 95%	0.01 g
CLM-10524	3-iodo-L-Tyrosine ( $^{13}\text{C}_6$ , 99%)	0.01 g
CLM-7104	3-nitro-L-Tyrosine (ring- $^{13}\text{C}_6$ , 99%) CP 94%	0.01 g
CLM-448	DL-Tyrosine ( $1\text{-}^{13}\text{C}$ , 99%)	Please inquire
DLM-137	DL-Tyrosine ( $3,3\text{-D}_2$ , 98%)	Please inquire
DLM-2914	DL-Tyrosine (ring- $3,5\text{-D}_2$ , 98%)	Please inquire
CLM-776	L-Tyrosine ( $1\text{-}^{13}\text{C}$ , 99%)	1 g
CLM-437	L-Tyrosine ( $2\text{-}^{13}\text{C}$ , 99%)	Please inquire
CLM-3378	L-Tyrosine ( $3\text{-}^{13}\text{C}$ , 99%)	0.1 g, 0.25 g
CLM-622	L-Tyrosine (phenol- $4\text{-}^{13}\text{C}$ , 95-99%)	0.25 g
CLM-623	L-Tyrosine (phenol- $3,5\text{-}^{13}\text{C}_2$ , 95-99%)	0.25 g
CLM-1542	L-Tyrosine (ring- $^{13}\text{C}_6$ , 99%)	0.25 g
CLM-2263-H	L-Tyrosine ( $^{13}\text{C}_9$ , 99%)	0.1 g, 0.25 g, 0.5 g
DLM-2317	L-Tyrosine ( $3,3\text{-D}_2$ , 98%)	0.5 g, 1 g
DLM-449	L-Tyrosine (ring- $3,5\text{-D}_2$ , 98%)	1 g, 5 g
DLM-2917	L-Tyrosine (ring- $2,6\text{-D}_2$ , $2\text{-D}$ , 98%)	Please inquire
DLM-451	L-Tyrosine (ring- $\text{D}_4$ , 98%)	0.5 g, 1 g
DLM-589	L-Tyrosine ( $\text{D}_7$ , 98%)	0.05 g, 0.1 g
NLM-590	L-Tyrosine ( $^{15}\text{N}$ , 98%)	0.5 g
OLM-621	L-Tyrosine (phenol- $^{17}\text{O}$ , 35-40%)	0.25 g, 0.5 g
OLM-8696	L-Tyrosine (phenol- $^{18}\text{O}$ , 85-90%)	Please inquire
CDLM-2369	L-Tyrosine (ring- $^{13}\text{C}_6$ , 99%; $3,3\text{-D}_2$ , 30%)	0.1 g
CNLM-7809	L-Tyrosine ( $1\text{-}^{13}\text{C}$ , 99%; $^{15}\text{N}$ , 98%)	0.25 g
CNLM-7610	L-Tyrosine ( $2,3\text{-}^{13}\text{C}_2$ , 99%; $^{15}\text{N}$ , 98%)	Please inquire
CNLM-439-H	L-Tyrosine ( $^{13}\text{C}_9$ , 99%; $^{15}\text{N}$ , 99%)	0.1 g, 0.25 g, 0.5 g
DNLM-7373	L-Tyrosine ( $\text{D}_7$ , 97-98%; $^{15}\text{N}$ , 98%)	0.25 g
CDNLM-11148	L-Tyrosine ( $3',5'\text{-}^{13}\text{C}_2$ , 99%; $2,3,3,2',6'\text{-D}_5$ , 98%; $^{15}\text{N}$ , 98%)	0.1 g
CDNLM-6815	L-Tyrosine ( $^{13}\text{C}_9$ , 97-99%; $\text{D}_7$ , 97-99%; $^{15}\text{N}$ , 97-99%)	0.25 g
DLM-10940	L-Tyrosine, <i>N</i> -acetyl (acetyl- $\text{D}_3$ , 98%)	Please inquire
CLM-10543	<i>cis</i> -Urocanic acid ( $1,2,3\text{-}^{13}\text{C}_3$ , 99%)	1 mg, 2 mg, 5 mg

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**Amino Acids and Their Derivatives** *(continued)*

Catalog No.	Description	Unit Size
CLM-166	DL-Valine (1- <sup>13</sup> C, 99%)	Please inquire
CLM-3277	DL-Valine (2- <sup>13</sup> C, 99%)	Please inquire
DLM-311	DL-Valine (D <sub>8</sub> , 98%)	1 g
NLM-236	DL-Valine ( <sup>15</sup> N, 98%)	Please inquire
CLM-470	L-Valine (1- <sup>13</sup> C, 99%)	1 g
CLM-3050	L-Valine (2- <sup>13</sup> C, 99%)	0.25 g
CLM-9217	L-Valine (dimethyl- <sup>13</sup> C <sub>2</sub> , 99%)	0.25 g, 1 g
CLM-2249-H	L-Valine ( <sup>13</sup> C <sub>5</sub> , 99%)	0.1 mg, 0.25 g, 0.5 g, 1 g
DLM-7732	L-Valine (3-D, 98%)	1 g
DLM-4364	L-Valine (2,3-D <sub>2</sub> , 98%)	0.1 g, 0.25 g
DLM-488	L-Valine (D <sub>8</sub> , 98%)	0.25 g, 0.5 g
NLM-316	L-Valine ( <sup>15</sup> N, 98%)	0.5 g, 1 g
CNLM-3466	L-Valine (1- <sup>13</sup> C, 99%; <sup>15</sup> N, 98%)	0.25 g
CNLM-8678	L-Valine (2- <sup>13</sup> C, 99%; <sup>15</sup> N, 98%)	Please inquire
CNLM-442-H	L-Valine ( <sup>13</sup> C <sub>5</sub> , 99%; <sup>15</sup> N, 99%)	0.25 g, 0.5 g, 1 g
DNLM-4643	L-Valine (D <sub>8</sub> , 96%; <sup>15</sup> N, 96%)	0.25 g, 0.5 g
CDNLM-4281	L-Valine ( <sup>13</sup> C <sub>5</sub> , 95-97%; 2,3-D <sub>2</sub> , 97%; <sup>15</sup> N, 96-99%)	0.1 g, 0.25 g
CDNLM-6817	L-Valine ( <sup>13</sup> C <sub>5</sub> , 97-99%; D <sub>8</sub> , 97-99%; <sup>15</sup> N, 97-99%)	0.25 g
ULM-8202	L-Valine (unlabeled)	0.1 mg
NLM-7888	L-Valine, N-acetyl ( <sup>15</sup> N, 98%)	0.5 g

Protected amino acids are also available. Please visit [isotope.com](https://isotope.com) for a complete product listing.

## Antiviral Drugs

Through partnership with Alsachim, CIL is proud to now offer an assortment of antiviral drug standards and metabolites, in their stable isotope-labeled and unlabeled form. These compounds are available in 1 mg units and are adept for use as internal standards in therapeutic monitoring and quantitative analysis exercises. Please inquire for pricing or see [isotope.com](https://isotope.com). **Available in North and South America only.**

Catalog No.	Description	Drug Class
C1768	Azithromycin ( $^{13}\text{C}$ , 99%; $\text{D}_3$ , 98%) CP 95%	Macrolide antibiotic
C1746	Azithromycin dihydrate (unlabeled)	
C5023	Chloroquine oxalate salt ( $\text{D}_5$ , 98%)	Antimalarial
C1741	Chloroquine diphosphate salt (unlabeled)	
C9255	Clofoctol ( $^{13}\text{C}_6$ , 99%)	Bacteriostatic antibiotic
C9254	Clofoctol (unlabeled)	
C5222	Colchicine ( $\text{D}_3$ , 98%)	Antigout and anti-inflammatory
C5221	Colchicine (unlabeled)	
C2453	Desethylchloroquine dioxalate salt ( $\text{D}_5$ , 98%)	Antimalarial
C2331	Desethylchloroquine diphosphate salt (unlabeled)	
C4923	Dexamethasone ( $\text{D}_4$ , 98%) CP 95%	Anti-inflammatory
C5057	Dexamethasone (unlabeled)	
C2451	Doxorubicin trifluoroacetate salt ( $^{13}\text{C}$ , 99%; $\text{D}_3$ , 98%) CP 95%	Anthracycline antibiotic
C3321	Doxorubicin hydrochloride salt (unlabeled) CP 95%	
C8884	EIDD-1931 ( $\beta$ -D- $\text{N}^4$ -hydroxycytidine) ( $^{13}\text{C}$ , 99%; $^{15}\text{N}_2$ , 98%)	Ribonucleoside analogue
C8883	EIDD-1931 ( $\beta$ -D- $\text{N}^4$ -hydroxycytidine) (unlabeled)	
C8882	EIDD-2801 (molnupiravir or MK-4482) ( $^{13}\text{C}$ , 99%; $^{15}\text{N}_2$ , 98%)	Nucleoside analogue inhibitor
C8881	EIDD-2801 (molnupiravir or MK-4482) (unlabeled)	
C5782	Elbasvir (MK-8742) ( $^{13}\text{C}_2$ , 99%; $\text{D}_6$ , 98%) CP 97%	Hepatitis C virus NS5A inhibitor
C5739	Elbasvir (MK-8742) (unlabeled)	
C8853	Favipiravir ( $^{13}\text{C}$ , 99%; $^{15}\text{N}$ , 98%)	Nucleoside analogue inhibitor
C8720	Favipiravir (unlabeled)	
C5784	Grazoprevir (MK-5172) ( $^{13}\text{C}$ , 99%; $\text{D}_3$ , 98%)	Hepatitis C virus NS3/4A protease inhibitor
C5783	Grazoprevir (MK-5172) (unlabeled)	
C8855	GS 441524 ( $^{13}\text{C}_5$ , 99%)	Nucleotide analogue inhibitor
C8847	GS 441524 (unlabeled)	
C6422	Hydroxychloroquine dioxalate salt ( $\text{D}_5$ , 98%)	Antimalarial
C4600	Hydroxychloroquine sulfate (unlabeled)	
C4693	Lopinavir ( $\text{D}_8$ , 98%) CP 95%	Protease inhibitor
C2745	Lopinavir (unlabeled)	
C8849	Nafamostat formate salt ( $^{13}\text{C}_6$ , 99%) CP 95%	Anticoagulant
C8848	Nafamostat mesylate (unlabeled)	
C677	Oseltamivir acid ( $^{13}\text{C}$ , 99%; $\text{D}_3$ , 98%)	Neuraminidase inhibitor
C2644	Oseltamivir acid (unlabeled)	
C8845	Remdesivir (ring- $^{13}\text{C}_6$ , 99%) CP 95%	Nucleotide analogue inhibitor
C8854	Remdesivir (ring- $^{13}\text{C}_6$ , 99%) mixture of diastereoisomers	
C8799	Remdesivir (unlabeled)	
C2963	Ritonavir ( $^{13}\text{C}$ , 99%; $\text{D}_3$ , 98%) CP 95%	Protease inhibitor
C2792	Ritonavir (unlabeled)	

For a listing of other “Drugs and Their Metabolites,” please see [page 27](#) or visit [isotope.com](https://isotope.com).

## Bile Acids

The analysis of bile acids (BAs) in biofluids is a developing and growing MS 'omics field. These steroid-like compounds act as detergent that assist in the breakdown of fats. The primary BAs are synthesized from cholesterol in the liver, while secondary BAs are converted from primary BAs in the colon. The bile acids can also be conjugated with glycine or taurine in the liver, which increase their solubility in water. Bile acids have gained clinical attention by their linkage to colon cancer, liver disease, chronic diarrhea, cholestasis, hyperlipidemia, and gallstones. CIL is pleased to offer an extensive panel of primary and secondary BAs, in their free acid and conjugated salt forms. These research-grade products are available as isotopically labeled and/or unlabeled standards in solution (at 100 µg/mL in methanol) and/or neat form.

### Primary Bile Acids and Their Conjugated Salts

Catalog No.	Description	Abbreviation	Concentration	Unit Size
CLM-2709	Chenodeoxycholic acid (24- <sup>13</sup> C, 99%)	CDCA	neat	0.1 g, 0.5 g
DLM-6780-C	Chenodeoxycholic acid (2,2,4,4-D <sub>4</sub> , 98%)	CDCA	100 µg/mL in methanol	1 mL
DLM-6780	Chenodeoxycholic acid (2,2,4,4-D <sub>4</sub> , 98%)	CDCA	neat	50 mg
DLM-9327	Chenodeoxycholic acid (2,2,3,4,4-D <sub>5</sub> , 98%)	CDCA	neat	0.05 g, 0.1 g
DLM-9541-C	Chenodeoxycholic acid (2,2,3,4,4,6,6,7,8-D <sub>9</sub> , 98%)	CDCA	100 µg/mL in methanol	1 mL
DLM-9541	Chenodeoxycholic acid (2,2,3,4,4,6,6,7,8-D <sub>9</sub> , 98%)	CDCA	neat	10 mg
ULM-9540	Chenodeoxycholic acid (unlabeled)	CDCA	neat	50 mg
CLM-2710	Cholic acid (24- <sup>13</sup> C, 99%)	CA	neat	0.1 g, 0.5 g
DLM-2611-C	Cholic acid (2,2,4,4-D <sub>4</sub> , 98%)	CA	100 µg/mL in methanol	Please inquire
DLM-2611	Cholic acid (2,2,4,4-D <sub>4</sub> , 98%)	CA	neat	50 mg
DLM-9549	Cholic acid (2,2,3,4,4-D <sub>5</sub> , 98%)	CA	neat	50 mg
DLM-10997	Cholic acid (3,6,6,7,8,11,11,12-D <sub>8</sub> , 98%) CP 95%	CA	neat	Please inquire
ULM-9543	Cholic acid (unlabeled)	CA	neat	50 mg
DLM-7804-C	Glycochenodeoxycholic acid (2,2,4,4-D <sub>4</sub> , 98%) CP 97%	GCDCA	100 µg/mL in methanol	1 mL
DLM-7804	Glycochenodeoxycholic acid (2,2,4,4-D <sub>4</sub> , 98%) CP 97%	GCDCA	neat	10 mg
DLM-9550-C	Glycochenodeoxycholic acid (2,2,3,4,4,6,6,7,8-D <sub>9</sub> , 98%) CP 97%	GCDCA	100 µg/mL in methanol	1 mL
DLM-9550	Glycochenodeoxycholic acid (2,2,3,4,4,6,6,7,8-D <sub>9</sub> , 98%) CP 97%	GCDCA	neat	10 mg
ULM-9942	Glycochenodeoxycholic acid, sodium salt (unlabeled)	GCDCA	neat	10 mg
CLM-191	Glycocholic acid (glycine-1- <sup>13</sup> C, 99%)	GCA	neat	Please inquire
DLM-2742-C	Glycocholic acid (2,2,4,4-D <sub>4</sub> , 98%)	GCA	100 µg/mL in methanol	1 mL
DLM-2742	Glycocholic acid (2,2,4,4-D <sub>4</sub> , 98%) CP 96% (contains ~4% water)	GCA	neat	10 mg
ULM-9551	Glycocholic acid hydrate (unlabeled)	GCA	neat	50 mg
DLM-10627	α-Muricholic acid (2,2,3,4,4-D <sub>5</sub> , 99%)	MCA (α)	neat	1 mg
ULM-10621	α-Muricholic acid (unlabeled)	MCA (α)	neat	1 mg
DLM-10626	β-Muricholic acid (2,2,3,4,4-D <sub>5</sub> , 99%)	MCA (β)	neat	1 mg
ULM-10620	β-Muricholic acid (unlabeled)	MCA (β)	neat	1 mg
DLM-10628	γ-Muricholic acid (2,2,3,4,4-D <sub>5</sub> , 99%)	MCA (γ)	neat	1 mg
ULM-10622	γ-Muricholic acid (unlabeled)	MCA (γ)	neat	1 mg
DLM-10629	ω-Muricholic acid (2,2,3,4,4-D <sub>5</sub> , 99%)	MCA (ω)	neat	1 mg
ULM-10623	ω-Muricholic acid (unlabeled)	MCA (ω)	neat	1 mg
DLM-9562-C	Taurochenodeoxycholic acid, sodium salt (2,2,4,4-D <sub>4</sub> , 98%) CP 97%	TCDCA	100 µg/mL in methanol	1 mL
DLM-9562	Taurochenodeoxycholic acid, sodium salt (2,2,4,4-D <sub>4</sub> , 98%) CP 97%	TCDCA	neat	10 mg
DLM-9563-C	Taurochenodeoxycholic acid, sodium salt (2,2,3,4,4,6,6,7,8-D <sub>9</sub> , 98%)	TCDCA	100 µg/mL in methanol	1 mL
DLM-9563	Taurochenodeoxycholic acid, sodium salt (2,2,3,4,4,6,6,7,8-D <sub>9</sub> , 98%)	TCDCA	neat	5 mg
ULM-9561	Taurochenodeoxycholic acid, sodium salt (unlabeled)	TCDCA	neat	50 mg
DLM-9572-C	Taurocholic acid, sodium salt (2,2,4,4-D <sub>4</sub> , 98%)	TCA	100 µg/mL in methanol	1 mL
DLM-9572	Taurocholic acid, sodium salt (2,2,4,4-D <sub>4</sub> , 98%)	TCA	neat	10 mg
CNLM-10251	Taurocholic acid, sodium salt (taurine- <sup>13</sup> C <sub>2</sub> , 99%; <sup>15</sup> N, 98%)	TCA	neat	10 mg
ULM-9571	Taurocholic acid, sodium salt hydrate (unlabeled) CP 97%	TCA	neat	50 mg

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.  
For research use only. Not for use in diagnostic procedures.



## Secondary Bile Acids and Their Conjugated Salts

Catalog No.	Description	Abbreviation	Concentration	Unit Size
CLM-3364	Deoxycholic acid (24- <sup>13</sup> C, 98%) CP 97%	DCA	neat	0.1 g, 0.5 g
DLM-2824-C	Deoxycholic acid (2,2,4,4-D <sub>4</sub> , 98%)	DCA	100 µg/mL in methanol	1 mL
DLM-2824	Deoxycholic acid (2,2,4,4-D <sub>4</sub> , 98%)	DCA	neat	10 mg
DLM-9546-C	Deoxycholic acid (2,2,4,4,11,11-D <sub>6</sub> , 98%)	DCA	100 µg/mL in methanol	1 mL
DLM-9546	Deoxycholic acid (2,2,4,4,11,11-D <sub>6</sub> , 98%)	DCA	neat	10 mg
ULM-9545	Deoxycholic acid (unlabeled)	DCA	neat	50 mg
DLM-9554-C	Glycodeoxycholic acid (2,2,4,4-D <sub>4</sub> , 98%)	GDCA	100 µg/mL in methanol	1 mL
DLM-9554	Glycodeoxycholic acid (2,2,4,4-D <sub>4</sub> , 98%)	GDCA	neat	10 mg
DLM-9553-C	Glycodeoxycholic acid (2,2,4,4,11,11-D <sub>6</sub> , 98%)	GDCA	100 µg/mL in methanol	1 mL
DLM-9553	Glycodeoxycholic acid (2,2,4,4,11,11-D <sub>6</sub> , 98%)	GDCA	neat	10 mg
ULM-9552	Glycodeoxycholic acid, sodium salt (unlabeled)	GDCA	neat	50 mg
DLM-9556-C	Glycolithocholic acid (2,2,4,4-D <sub>4</sub> , 98%)	GLCA	100 µg/mL in methanol	1 mL
DLM-9556	Glycolithocholic acid (2,2,4,4-D <sub>4</sub> , 98%)	GLCA	neat	10 mg
ULM-9555	Glycolithocholic acid (unlabeled)	GLCA	neat	50 mg
DLM-9558-C	Glycoursodeoxycholic acid (2,2,4,4-D <sub>4</sub> , 98%) CP 97%	GUDCA	100 µg/mL in methanol	1 mL
DLM-9558	Glycoursodeoxycholic acid (2,2,4,4-D <sub>4</sub> , 98%) CP 97%	GUDCA	neat	10 mg
CNLM-10252	Glycoursodeoxycholic acid (glycine- <sup>13</sup> C <sub>2</sub> , 99%; <sup>15</sup> N, 98%)	GUDCA	neat	10 mg
ULM-9557	Glycoursodeoxycholic acid (unlabeled)	GUDCA	neat	50 mg
DLM-9560-C	Lithocholic acid (2,2,4,4-D <sub>4</sub> , 98%)	LCA	100 µg/mL in methanol	1 mL
DLM-9560	Lithocholic acid (2,2,4,4-D <sub>4</sub> , 98%)	LCA	neat	50 mg
ULM-9559	Lithocholic acid (unlabeled)	LCA	neat	50 mg
DLM-9568-C	Taurodeoxycholic acid, sodium salt (2,2,4,4-D <sub>4</sub> , 98%)	TDCA	100 µg/mL in methanol	1 mL
DLM-9568	Taurodeoxycholic acid, sodium salt (2,2,4,4-D <sub>4</sub> , 98%)	TDCA	neat	10 mg
DLM-9567-C	Taurodeoxycholic acid, sodium salt (2,2,4,4,11,11-D <sub>6</sub> , 98%)	TDCA	100 µg/mL in methanol	1 mL
DLM-9567	Taurodeoxycholic acid, sodium salt (2,2,4,4,11,11-D <sub>6</sub> , 98%)	TDCA	neat	5 mg
ULM-9943	Taurodeoxycholic acid, sodium salt, hydrate (unlabeled)	TDCA	neat	50 mg
DLM-9570-C	Taurolithocholic acid, sodium salt (2,2,4,4-D <sub>4</sub> , 98%)	TLCA	100 µg/mL in methanol	1 mL
DLM-9570	Taurolithocholic acid, sodium salt (2,2,4,4-D <sub>4</sub> , 98%)	TLCA	neat	10 mg
ULM-9569	Taurolithocholic acid, sodium salt (unlabeled)	TLCA	neat	50 mg
ULM-9885	Tauroursodeoxycholic acid, dihydrate (unlabeled)	TUDCA	neat	50 mg
DLM-9882-C	Tauroursodeoxycholic acid, sodium salt (2,2,4,4-D <sub>4</sub> , 98%)	TUDCA	100 µg/mL in methanol	1 mL
DLM-9882	Tauroursodeoxycholic acid, sodium salt (2,2,4,4-D <sub>4</sub> , 98%)	TUDCA	neat	10 mg
CNLM-10250	Tauroursodeoxycholic acid, sodium salt (taurine- <sup>13</sup> C <sub>2</sub> , 99%; <sup>15</sup> N, 98%)	TUDCA	neat	10 mg
DLM-9574-C	Ursodeoxycholic acid (2,2,4,4-D <sub>4</sub> , 98%)	UDCA	100 µg/mL in methanol	1 mL
DLM-9574	Ursodeoxycholic acid (2,2,4,4-D <sub>4</sub> , 98%) CP 95%	UDCA	neat	50 mg
ULM-9573	Ursodeoxycholic acid (unlabeled)	UDCA	neat	50 mg

For a complete product listing, please visit [isotope.com](https://isotope.com).

## Caffeine and Its Metabolites

Caffeine is a psychoactive stimulant of the central nervous system that is extensively consumed worldwide. MS-based research into the kinetics/metabolism of this compound and its metabolites (e.g., paraxanthine, theobromine, theophylline) has revealed insight into its health impact and abuse in humans. Studies further suggest an influence on pharmacological activity and neurodegeneration (e.g., Parkinson's disease); thus, strengthening a need for its robust clinical analyses.

CIL offers stable isotope-labeled caffeine and a collection of isotopically labeled metabolites for basic and translational quantitative research. These standards are available in various labeling patterns, with alternate compounds or labels evaluated upon request.

Catalog No.	Description	Unit Size
CLM-728	Caffeine (3-methyl- <sup>13</sup> C, 99%)	0.5 g
CLM-514	Caffeine (trimethyl- <sup>13</sup> C <sub>3</sub> , 99%)	1 g
NLM-332	Caffeine (1,3- <sup>15</sup> N <sub>2</sub> , 99%)	Please inquire
CNLM-333	Caffeine (2- <sup>13</sup> C, 99%; 1,3- <sup>15</sup> N <sub>2</sub> , 98%)	0.1 g
CLM-522	Ethyl acetoacetate (1,3- <sup>13</sup> C <sub>2</sub> , 99%)	0.5 g, 1 g
CLM-523	Ethyl acetoacetate (2,4- <sup>13</sup> C <sub>2</sub> , 99%)	0.5 g, 1 g
DLM-10436	Theobromine (3,7-dimethylxanthine) (7-methyl-D <sub>3</sub> , 98%)	Please inquire
DLM-8565	Theobromine (3,7-dimethylxanthine) (dimethyl-D <sub>6</sub> , 98%)	5 mg
CLM-6154	Theophylline (dimethyl- <sup>13</sup> C <sub>2</sub> , 99%)	0.1 g
CNLM-444	Theophylline (2- <sup>13</sup> C, 99%; 1,3- <sup>15</sup> N <sub>2</sub> , 98%)	0.05 g, 0.1 g
NLM-1697	Uric acid (1,3- <sup>15</sup> N <sub>2</sub> , 98%)	0.1 g, 0.5 g

For a complete product listing, please visit [isotope.com](https://isotope.com).

## Carbohydrates

Carbohydrates are integral biomolecules to the function and process of living systems (e.g., in cell-to-cell signaling, immune responses, protein folding). Although this family of compounds is structurally diverse and complex, analysis by LC- and GC-MS techniques has been well adopted in the metabolomics field. Clinically, the quantitative analysis of sugars in human biosamples is of increasing importance for such disease screenings as cardiovascular and nonalcoholic fatty liver disease (NAFLD).

In addition to the classic monosaccharides (e.g., glucose, fructose, ribose) and sugar alcohols (e.g., erythritol, sorbitol, xylitol), CIL offers a number of other stable isotope-labeled carbohydrates. The list includes monosaccharides, under the pentose (e.g., arabinose, erythrose) and hexose (e.g., galactose, mannose) classes, disaccharides (e.g., lactose, maltose, sucrose), and polysaccharides (e.g., starch). These compounds are supplied with various labeling patterns as neat standards, in research or MPT grade.

Catalog No.	Description	Unit Size
CLM-1220	<i>N</i> -Acetylglucosamine ( <i>N</i> -acetyl-1- <sup>13</sup> C, 99%)	Please inquire
CLM-1827	<i>N</i> -Acetylglucosamine ( <sup>13</sup> C <sub>6</sub> , 99%)	Please inquire
NLM-8810	<i>N</i> -Acetylglucosamine ( <sup>15</sup> N, 98%)	0.1 g
CLM-1699	Algal starch (U- <sup>13</sup> C, 98%) CP 90%	0.1 g, 0.5 g, 1 g
ULM-7806	Algal starch (unlabeled)	1 g
CLM-7642	D-Arabinitol (U- <sup>13</sup> C <sub>5</sub> , 98%)	Please inquire
CLM-715	D-Arabinose (1- <sup>13</sup> C, 99%)	0.25 g, 0.5 g, 1 g
CLM-1288	D-Arabinose (2- <sup>13</sup> C, 98%)	Please inquire
CLM-8477	D-Arabinose (U- <sup>13</sup> C <sub>5</sub> , 99%)	0.1 g, 0.25 g
DLM-1379	D-Arabinose (2-D, 97%)	Please inquire
CLM-7266	2-Deoxyribose (1- <sup>13</sup> C, 99%)	Please inquire
CLM-9207	Erythritol (U- <sup>13</sup> C <sub>4</sub> , 99%)	Please inquire
CLM-1118	D-Erythrose (1- <sup>13</sup> C, 99%) 1.2% in H <sub>2</sub> O	Please inquire
CLM-1387	D-Erythrose (2- <sup>13</sup> C, 99%) 1.2% in H <sub>2</sub> O	Please inquire
CLM-8944	D-Erythrose (4- <sup>13</sup> C, 99%) 1.2% in H <sub>2</sub> O	Please inquire
CLM-7863	D-Erythrose (U- <sup>13</sup> C <sub>4</sub> , 98%) 1.2% in H <sub>2</sub> O	Please inquire
CLM-1201	D-Fructose (1- <sup>13</sup> C, 99%)	0.25 g, 0.5 g, 1 g
CLM-1527	D-Fructose (2- <sup>13</sup> C, 99%)	0.25 g, 0.5 g, 1 g
CLM-7660	D-Fructose (3- <sup>13</sup> C, 99%)	Please inquire
CLM-7661	D-Fructose (4- <sup>13</sup> C, 99%)	Please inquire
CLM-7662	D-Fructose (5- <sup>13</sup> C, 99%)	Please inquire
CLM-1388	D-Fructose (6- <sup>13</sup> C, 99%)	Please inquire
CLM-2462	D-Fructose (1- <sup>13</sup> C, 99%; 6- <sup>13</sup> C, 97%)	Please inquire
CLM-528	D-Fructose (1,2- <sup>13</sup> C <sub>2</sub> , 99%)	0.1 g, 0.25 g, 0.5 g
CLM-10546	D-Fructose (4,5- <sup>13</sup> C <sub>2</sub> , 99%)	Please inquire
CLM-8415	D-Fructose (1,2,3- <sup>13</sup> C <sub>3</sub> , 99%)	Please inquire
CLM-10223	D-Fructose (4,5,6- <sup>13</sup> C <sub>3</sub> , 98%)	Please inquire
CLM-1553	D-Fructose (U- <sup>13</sup> C <sub>6</sub> , 99%)	0.1 mg, 0.25 g, 0.5 g, 1 g
DLM-6050	D-Fructose (1-D, 97%)	Please inquire
DLM-1389	D-Fructose (6,6-D <sub>2</sub> , 98%)	Please inquire
CLM-6678	D-Fructose-1,6-bisphosphate, sodium salt hydrate (1- <sup>13</sup> C, 99%)	Please inquire
CLM-8962	D-Fructose-1,6-bisphosphate, sodium salt hydrate (U- <sup>13</sup> C <sub>6</sub> , 98%)	0.05 g
CLM-8616	D-Fructose-6-phosphate·2Na <sup>+</sup> ·xH <sub>2</sub> O ( <sup>13</sup> C <sub>6</sub> , 99%) may contain up to ~10% <sup>13</sup> C <sub>6</sub> glucose-6-phosphate	0.01 g, 25 mg, 0.05 g
CLM-3705	L-Fucose (1- <sup>13</sup> C, 99%)	Please inquire
CLM-219	L-Fucose (6- <sup>13</sup> C, 99%)	Please inquire
CLM-9605	L-Fucose (U- <sup>13</sup> C <sub>6</sub> , 99%)	Please inquire
CLM-529	D-Galactitol (1- <sup>13</sup> C, 99%)	Please inquire
CLM-2199	D-Galactitol (U- <sup>13</sup> C <sub>6</sub> , 99%)	Please inquire
CLM-11003	D-Galactonate, sodium salt (U- <sup>13</sup> C <sub>6</sub> , 99%) CP 97%	Please inquire
CLM-10786	<i>N</i> -Acetyl-D-galactosamine (galactose- <sup>13</sup> C <sub>6</sub> , 99%)	Please inquire

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.  
For research use only. Not for use in diagnostic procedures.

## Carbohydrates (continued)

Catalog No.	Description	Unit Size
CLM-744	D-Galactose (1- <sup>13</sup> C, 99%)	0.25 g, 0.5 g, 1 g
CLM-745	D-Galactose (2- <sup>13</sup> C, 99%)	Please inquire
CLM-4217	D-Galactose (1,2- <sup>13</sup> C <sub>2</sub> , 99%)	Please inquire
CLM-1570	D-Galactose (U- <sup>13</sup> C <sub>6</sub> , 99%)	0.1 g
DLM-1390	D-Galactose (1-D, 98%)	0.5 g, 1 g
DLM-1391	D-Galactose (2-D, 98%)	Please inquire
CLM-8998	D-Galactose-1-phosphate, dipotassium salt (1- <sup>13</sup> C, 99%)	0.01 g, 0.05 g, 0.1 g
CLM-9873	D-Galactose-1-phosphate, dipotassium salt (1,2- <sup>13</sup> C <sub>2</sub> , 99%)	Please inquire
CLM-9874	D-Galactose-1-phosphate, dipotassium salt (galactose- <sup>13</sup> C <sub>6</sub> , 99%)	Please inquire
CLM-9657	1,5-Anhydro-D-glucitol (U- <sup>13</sup> C <sub>6</sub> , 98%)	Please inquire
CLM-9452	α-D-Glucopyranosyl-1-phosphate, dipotassium salt monohydrate ( <sup>13</sup> C <sub>6</sub> , 99%)	Please inquire
CLM-9938	D-Glucuronic acid, sodium salt monohydrate (U- <sup>13</sup> C <sub>6</sub> , 98%)	Please inquire
CLM-9883	D-Glucosamine-HCl ( <sup>13</sup> C <sub>6</sub> , 99%)	Please inquire
NLM-11018	D-Glucosamine-HCl ( <sup>15</sup> N, 98%)	Please inquire
CLM-4819	D-Glucose (U- <sup>12</sup> C <sub>6</sub> , 99.9%)	1 g
CLM-420	D-Glucose (1- <sup>13</sup> C, 98-99%)	0.25 g, 0.5 g, 1 g, 5 g, 10 g
CLM-746	D-Glucose (2- <sup>13</sup> C, 99%)	0.25 g, 0.5 g, 1 g
CLM-1393	D-Glucose (3- <sup>13</sup> C, 99%)	0.25 g, 0.5 g, 1 g
CLM-1394	D-Glucose (4- <sup>13</sup> C, 99%)	0.25 g, 0.5 g, 1 g
CLM-1395	D-Glucose (5- <sup>13</sup> C, 98%)	0.25 g, 0.5 g, 1 g
CLM-481	D-Glucose (6- <sup>13</sup> C, 99%)	0.25 g, 0.5 g, 1 g
CLM-2717	D-Glucose (1- <sup>13</sup> C, 99%; 6- <sup>13</sup> C, 97%)	0.1 g, 0.25 g, 1 g
CLM-504	D-Glucose (1,2- <sup>13</sup> C <sub>2</sub> , 99%)	0.25 g, 0.5 g, 1 g
CLM-8942	D-Glucose (2,3- <sup>13</sup> C <sub>2</sub> , 99%)	Please inquire
CLM-6750	D-Glucose (3,4- <sup>13</sup> C <sub>2</sub> , 99%)	Please inquire
CLM-8787	D-Glucose (4,5- <sup>13</sup> C <sub>2</sub> , 99%)	Please inquire
CLM-4673	D-Glucose (1,2,3- <sup>13</sup> C <sub>3</sub> , 99%)	0.05 g, 0.1 g, 0.25 g
CLM-8770	D-Glucose (4,5,6- <sup>13</sup> C <sub>3</sub> , 98%)	0.1 g
CLM-8946	D-Glucose (2,3,4,5,6- <sup>13</sup> C <sub>5</sub> , 99%)	Please inquire
CLM-1396	D-Glucose (U- <sup>13</sup> C <sub>6</sub> , 99%)	0.1 mg, 0.25 g, 0.5 g, 1 g, 2 g, 5 g, 10 g, 25 g, 50 g
CLM-1396-25	D-Glucose ( <sup>13</sup> C <sub>6</sub> , 24-25%)	1 g
DLM-1150	D-Glucose (1-D, 98%)	0.25 g, 0.5 g, 1 g
DLM-1271	D-Glucose (2-D, 98%)	0.25 g, 0.5 g, 1 g
DLM-3557	D-Glucose (3-D, 97-98%)	0.1 g, 0.5 g
DLM-9294	D-Glucose (4-D, 98%)	Please inquire
DLM-6754	D-Glucose (5-D, 98%)	0.1 g, 0.25 g, 0.5 g
DLM-349	D-Glucose (6,6-D <sub>2</sub> , 99%)	1 g, 5 g, 10 g
DLM-2062	D-Glucose (1,2,3,4,5,6,6-D <sub>7</sub> , 97-98%)	0.5 g, 1 g, 5 g, 10 g, 20 g
DLM-9047	D-Glucose (U-D <sub>12</sub> , 98%)	1 g
CDLM-6064	D-Glucose (1- <sup>13</sup> C, 99%; 1-D, 98%)	Please inquire
CDLM-999	D-Glucose (1- <sup>13</sup> C, 98%; 2-D, 98%)	Please inquire
CDLM-4895	D-Glucose (1- <sup>13</sup> C, 99%; 6- <sup>13</sup> C, 97%; 6,6-D <sub>2</sub> , 98%)	Please inquire
CDLM-3813	D-Glucose (U- <sup>13</sup> C <sub>6</sub> , 99%; 1,2,3,4,5,6,6-D <sub>7</sub> , 97-98%)	1 g, 2 g, 10 g
CLM-8813	D-Glucose-1-phosphate, dicyclohexylammonium salt monohydrate (U- <sup>13</sup> C <sub>6</sub> , 99%) CP 95%	Please inquire
CLM-8367	D-Glucose-6-phosphate, disodium salt hydrate (U- <sup>13</sup> C <sub>6</sub> , 99%)	0.1 mg, 0.01 g, 0.05 g, 0.1 g
CLM-1966	L-Glucose (1- <sup>13</sup> C, 99%)	Please inquire
CLM-1399	L-Glucose (2- <sup>13</sup> C, 99%)	Please inquire
CLM-1824	2-Deoxy-D-glucose (1- <sup>13</sup> C, 99%)	0.1 g, 0.25 g
CLM-2122	2-Deoxy-D-glucose (6- <sup>13</sup> C, 99%)	0.25 g, 0.5 g, 1 g
CLM-10466	2-Deoxy-D-glucose (U- <sup>13</sup> C <sub>6</sub> , 99%)	Please inquire
DLM-6732	2-Deoxy-D-glucose (1-D, 98%)	Please inquire
DLM-6940	2-Deoxy-D-glucose (D <sub>8</sub> , 98%)	Please inquire

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.  
For research use only. Not for use in diagnostic procedures.

Catalog No.	Description	Unit Size
CLM-9601	2-Deoxy-D-glucose-6-phosphate, disodium salt (6- <sup>13</sup> C, 99%)	Please inquire
CLM-10491	3-O-Methyl-D-glucose ( <sup>12</sup> C <sub>6</sub> , 99.99%) <sup>13</sup> C depleted	Please inquire
CLM-10492	3-O-Methyl-D-glucose ( <sup>13</sup> C <sub>6</sub> , 99%)	Please inquire
DLM-7826	<i>myo</i> -Inositol (2-D, 91%)	Please inquire
DLM-2725	<i>myo</i> -Inositol (1,2,3,4,5,6-D <sub>6</sub> , 98%)	Please inquire
CLM-4518	Lactose ureide·XH <sub>2</sub> O (ureide- <sup>13</sup> C, 99%)	1 g, 10 g
ULM-4519	Lactose ureide·2H <sub>2</sub> O (unlabeled)	10 g
CLM-4423	Lactose·H <sub>2</sub> O (glucose- <sup>13</sup> C <sub>6</sub> , 98%)	Please inquire
CLM-1127	D-Lyxose (1- <sup>13</sup> C, 99%)	Please inquire
CLM-1525	D-Lyxose (2- <sup>13</sup> C, 99%)	Please inquire
CLM-1128	D-Lyxose (5- <sup>13</sup> C, 99%)	Please inquire
DLM-1187	D-Lyxose (1-D, 98%)	Please inquire
DLM-1188	D-Lyxose (2-D, 98%)	Please inquire
CLM-2470	L-Lyxose (1,2- <sup>13</sup> C <sub>2</sub> , 99%)	Please inquire
CLM-2642	D-Maltose·H <sub>2</sub> O (U- <sup>13</sup> C <sub>12</sub> , 99%)	Please inquire
CLM-10759	Maltotetraose (U- <sup>13</sup> C <sub>24</sub> , 99%) CP 90%	Please inquire
CLM-1189	D-Mannitol (1- <sup>13</sup> C, 98%)	0.25 g, 0.5 g, 1 g
CLM-4416	D-Mannitol (2- <sup>13</sup> C, 99%)	Please inquire
CLM-10764	D-Mannitol (1,2- <sup>13</sup> C <sub>2</sub> , 99%)	Please inquire
CLM-6733	D-Mannitol (U- <sup>13</sup> C <sub>6</sub> , 99%)	0.1 g
CLM-9393	L-Mannitol (1- <sup>13</sup> C, 99%)	Please inquire
CLM-358	D-Mannose (1- <sup>13</sup> C, 99%)	0.25 g, 0.5 g, 1 g
CLM-1523	D-Mannose (2- <sup>13</sup> C, 99%)	Please inquire
CLM-9064	D-Mannose (3- <sup>13</sup> C, 99%)	Please inquire
CLM-9394	D-Mannose (4- <sup>13</sup> C, 99%)	Please inquire
CLM-9063	D-Mannose (5- <sup>13</sup> C, 99%)	Please inquire
CLM-1192	D-Mannose (6- <sup>13</sup> C, 99%)	Please inquire
CLM-6567	D-Mannose (U- <sup>13</sup> C <sub>6</sub> , 99%)	0.1 g, 0.25 g, 0.5 g
DLM-1193	D-Mannose (1-D, 98%)	Please inquire
DLM-1194	D-Mannose (2-D, 98%)	Please inquire
DLM-1195	D-Mannose (6,6-D <sub>2</sub> , 98%)	Please inquire
CLM-1218	L-Mannose (1- <sup>13</sup> C, 99%)	Please inquire
CLM-8597	<i>N</i> -Acetyl-D-neuraminic acid (4,5,6,7,8,9- <sup>13</sup> C <sub>6</sub> , 98%)	Please inquire
CLM-10568	L-Rhamnose·H <sub>2</sub> O (U- <sup>13</sup> C <sub>6</sub> , 99%)	Please inquire
CLM-1196	D-Ribitol (1- <sup>13</sup> C, 99%)	Please inquire
CLM-768	D-Ribose (1- <sup>13</sup> C, 99%)	0.25 g, 0.5 g, 1 g
CLM-1069	D-Ribose (2- <sup>13</sup> C, 99%)	Please inquire
CLM-1066	D-Ribose (5- <sup>13</sup> C, 99%)	0.25 g, 0.5 g, 1 g
CLM-4602	D-Ribose (1,2- <sup>13</sup> C <sub>2</sub> , 99%)	Please inquire
CLM-4830	D-Ribose (2,3,4,5- <sup>13</sup> C <sub>4</sub> , 99%)	Please inquire
CLM-3652	D-Ribose (U- <sup>13</sup> C <sub>5</sub> , 98%)	0.1 mg, 0.1 g
DLM-1070	D-Ribose (1-D, 98%)	0.25 g, 0.5 g, 1 g
DLM-1197	D-Ribose (2-D, 98%)	Please inquire
DLM-6559	D-Ribose (3-D, 98%)	Please inquire
DLM-7778	D-Ribose (5,5-D <sub>2</sub> , 98%)	Please inquire
DLM-4750	2-Deoxy-D-ribose (5,5-D <sub>2</sub> , 98%)	Please inquire
CLM-8780	Sodium D-gluconate (1- <sup>13</sup> C, 99%)	Please inquire
CLM-8781	Sodium D-gluconate (U- <sup>13</sup> C <sub>6</sub> , 99%)	Please inquire
CLM-1565	D-Sorbitol (1- <sup>13</sup> C, 99%)	Please inquire
CLM-8529	D-Sorbitol (U- <sup>13</sup> C <sub>6</sub> , 98%)	0.1 g, 0.25 g
DLM-3320	Sorbitol (1,1'-D <sub>2</sub> , 98%)	Please inquire

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.  
For research use only. Not for use in diagnostic procedures.



**Carbohydrates** *(continued)*

Catalog No.	Description	Unit Size
CLM-10823	D-Sucrose (glucose-1,2- <sup>13</sup> C <sub>2</sub> , 99%)	Please inquire
CLM-9811	D-Sucrose (fructose- <sup>13</sup> C <sub>6</sub> , 98%)	Please inquire
CLM-8091	D-Sucrose (glucose- <sup>13</sup> C <sub>6</sub> , 98%)	0.1 mg
CLM-7757	D-Sucrose ( <sup>13</sup> C <sub>12</sub> , 98%)	Please inquire
DLM-10939	D-Sucrose (U-D <sub>22</sub> , 98%)	Please inquire
CLM-1203	D-Talitol (1- <sup>13</sup> C, 99%)	Please inquire
CLM-1204	D-Talose (2- <sup>13</sup> C, 99%)	Please inquire
CLM-1139	D-Threose (1- <sup>13</sup> C, 99%) 1.8% in H <sub>2</sub> O	Please inquire
CLM-1207	D-Threose (2- <sup>13</sup> C, 99%) 1.8% in H <sub>2</sub> O	Please inquire
CLM-1295	D-Xylitol (1- <sup>13</sup> C, 99%)	Please inquire
CLM-1214	D-Xylitol (5- <sup>13</sup> C, 99%)	Please inquire
CLM-7608	D-Xylitol (U- <sup>13</sup> C <sub>5</sub> , 99%)	Please inquire
DLM-9656	D-Xylitol (1,1',2,3,4,5,5'-D <sub>7</sub> , 98%)	Please inquire
CLM-1140	D-Xylose (1- <sup>13</sup> C, 99%)	0.25 g, 0.5 g, 1 g
CLM-1524	D-Xylose (2- <sup>13</sup> C, 99%)	0.25 g, 0.5 g, 1 g
CLM-8593	D-Xylose (3- <sup>13</sup> C, 99%)	Please inquire
CLM-9083	D-Xylose (4- <sup>13</sup> C, 99%)	Please inquire
CLM-1219	D-Xylose (5- <sup>13</sup> C, 99%)	0.25 g, 0.5 g, 1 g
CLM-2456	D-Xylose (1,2- <sup>13</sup> C <sub>2</sub> , 99%)	0.25 g, 0.5 g, 1 g
CLM-6140	D-Xylose (U- <sup>13</sup> C <sub>5</sub> , 99%)	0.25 g, 0.5 g, 1 g
DLM-1215	D-Xylose (1-D, 99%)	Please inquire
DLM-1216	D-Xylose (2-D, 98%)	Please inquire
DLM-7121	D-Xylose (D <sub>6</sub> , 98%)	Please inquire
CLM-11008	D-Xylulose (U- <sup>13</sup> C <sub>5</sub> , 98%)	Please inquire

For a complete product listing, please visit [isotope.com](https://isotope.com).

## Carnitine and Acylcarnitines

Carnitine and acylcarnitines play an essential role in fatty acid metabolism. Metabolism disorders of fatty acid oxidation and several organic acidurias impose major clinical manifestations (e.g., hypoketotic hypoglycemia, skeletal myopathy, liver disease, and/or failure). These are largely attributed to enzymatic deficiencies and can be monitored through carnitine/acylcarnitine measurement.

To help facilitate metabolic screening exercises, CIL is pleased to offer a variety of stable isotope-labeled and unlabeled carnitine/acylcarnitine standards. Please refer to **page 52** for a list of mix offerings; individual standards are noted below.

Catalog No.	Description	Abbreviation	Unit Size
ULM-7801	L-Carnitine (unlabeled)	C0	Please inquire
DLM-1871	L-Carnitine·HCl (methyl-D <sub>3</sub> , 98%)	C0	0.1 g
DLM-3820	L-Carnitine·HCl (dimethyl-D <sub>6</sub> , 98%)	C0	Please inquire
DLM-10962	L-Carnitine·HCl (trimethyl-D <sub>9</sub> , 98%)	C0	5 mg
DLM-3555	L-Carnitine (trimethyl-D <sub>9</sub> , 98%)	C0	Please inquire
DNLM-10613	L-Carnitine ( <i>N,N,N</i> -trimethyl-D <sub>9</sub> , 98%; <sup>15</sup> N, 98%)	C0	Please inquire
ULM-9173	L-Carnitine·HCl (unlabeled)	C0	Please inquire
ULM-10431	DL-Carnitine·HCl, <i>O</i> -acetyl (unlabeled)	C2	Please inquire
DLM-754	L-Carnitine·HCl, <i>O</i> -acetyl ( <i>N</i> -methyl-D <sub>3</sub> , 98%)	C2	0.05 g
DLM-3821	L-Carnitine·HCl, <i>O</i> -acetyl ( <i>N,N</i> -dimethyl-D <sub>6</sub> , 98%) CP 97%	C2	Please inquire
ULM-7802	L-Carnitine·HCl, <i>O</i> -acetyl (unlabeled)	C2	Please inquire
ULM-10702	DL-Carnitine·HCl, <i>O</i> -propionyl (unlabeled)	C3	Please inquire
DLM-3973	L-Carnitine·HCl, <i>O</i> -propionyl ( <i>N</i> -methyl-D <sub>3</sub> , 98%)	C3	10 mg
ULM-7705	L-Carnitine·HCl, <i>O</i> -propionyl (unlabeled)	C3	Please inquire
DLM-11049	L-Carnitine·ClO <sub>4</sub> , <i>O</i> -malonyl (D <sub>3</sub> , 98%)	C3-DC	Please inquire
ULM-8743	L-Carnitine·ClO <sub>4</sub> , <i>O</i> -malonyl (unlabeled) CP 97%	C3-DC	0.1 mg
ULM-10703	DL-Carnitine·HCl, <i>O</i> -butyryl (unlabeled)	C4	Please inquire
DLM-3861	L-Carnitine·HCl, <i>O</i> -butyryl ( <i>N</i> -methyl-D <sub>3</sub> , 98%)	C4	10 mg
ULM-7704	L-Carnitine·HCl, <i>O</i> -butyryl (unlabeled)	C4	Please inquire
ULM-12274	L-Carnitine, <i>O</i> -methylmalonyl, lithium salt (unlabeled) (in solution)	C4-DC	Please inquire
ULM-8621	L-Carnitine (mono)-ClO <sub>4</sub> , <i>O</i> -3-DL-hydroxybutyryl (unlabeled)	C4-OH	0.1 mg
ULM-10704	DL-Carnitine·HCl, <i>O</i> -isovaleryl (unlabeled)	C5	Please inquire
DLM-3974	L-Carnitine·HCl, <i>O</i> -isovaleryl ( <i>N,N,N</i> -trimethyl-D <sub>9</sub> , 98%)	C5	5 mg
ULM-4697	L-Carnitine·HCl, <i>O</i> -isovaleryl (unlabeled)	C5	Please inquire
DLM-12325	L-Carnitine·ClO <sub>4</sub> , <i>O</i> -tiglyl ( <i>N,N,N</i> -trimethyl-D <sub>9</sub> , 98%) CP 90%	C5:1	Please inquire
ULM-11154	L-Carnitine, <i>O</i> -tiglyl (unlabeled) CP 94%	C5:1	Please inquire
DLM-3975	L-Carnitine (mono)-ClO <sub>4</sub> , <i>O</i> -glutaryl ( <i>N</i> -methyl-D <sub>3</sub> , 98%) CP 97%	C5-DC	0.1 mg
ULM-7594	L-Carnitine (mono)-ClO <sub>4</sub> , <i>O</i> -glutaryl (unlabeled)	C5-DC	0.1 mg
DLM-8272	L-Carnitine·ClO <sub>4</sub> , 3-hydroxyisovaleryl ( <i>N</i> -methyl-D <sub>3</sub> , 98%)	C5-OH	1 mg
ULM-8237	L-Carnitine·ClO <sub>4</sub> , 3-hydroxyisovaleryl (unlabeled)	C5-OH	0.1 mg
DLM-9276	L-Carnitine·HCl, <i>O</i> -hexanoyl ( <i>N</i> -methyl-D <sub>3</sub> , 98%)	C6	0.1 mg
ULM-7198	L-Carnitine·HCl, <i>O</i> -hexanoyl (unlabeled)	C6	Please inquire
ULM-10432	DL-Carnitine·HCl, <i>O</i> -octanoyl (unlabeled)	C8	Please inquire
DLM-755	L-Carnitine·HCl, <i>O</i> -octanoyl ( <i>N</i> -methyl-D <sub>3</sub> , 98%)	C8	10 mg
ULM-7770	L-Carnitine·HCl, <i>O</i> -octanoyl (unlabeled)	C8	Please inquire
DLM-9067	L-Carnitine·HCl, <i>O</i> -decanoyl ( <i>N</i> -methyl-D <sub>3</sub> , 98%)	C10	0.1 mg
ULM-7195	L-Carnitine·HCl, <i>O</i> -decanoyl (unlabeled)	C10	Please inquire
DLM-8746	L-Carnitine·HCl, <i>O</i> -2-decenoyl ( <i>N,N,N</i> -trimethyl-D <sub>9</sub> , 98%) (95% E)	C10:1	Please inquire
ULM-8198	L-Carnitine·HCl, <i>O</i> -2-decenoyl (unlabeled)	C10:1	0.1 mg
DLM-8162	L-Carnitine·HCl, <i>O</i> -dodecanoyl ( <i>N</i> -methyl-D <sub>3</sub> , 98%)	C12	0.1 mg
DLM-8215	L-Carnitine·HCl, <i>O</i> -dodecanoyl ( <i>N,N,N</i> -trimethyl-D <sub>9</sub> , 98%)	C12	0.1 mg
ULM-7199	L-Carnitine·HCl, <i>O</i> -dodecanoyl (unlabeled)	C12	0.1 mg
ULM-10705	DL-Carnitine·HCl, <i>O</i> -myristoyl (unlabeled)	C14	Please inquire

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.

For research use only. Not for use in diagnostic procedures.

**Carnitine and Acylcarnitines** *(continued)*

Catalog No.	Description		Unit Size
DLM-4425	L-Carnitine·HCl, <i>O</i> -myristoyl ( <i>N,N,N</i> -trimethyl-D <sub>9</sub> , 98%)	C14	5 mg
ULM-7737	L-Carnitine·HCl, <i>O</i> -myristoyl (unlabeled)	C14	Please inquire
DLM-12326	L-Carnitine·ClO <sub>4</sub> , tetradec-5- <i>cis</i> -enoyl ( <i>N,N,N</i> -trimethyl-D <sub>9</sub> , 98%) CP 90%	C14:1	Please inquire
ULM-11318	L-Carnitine·ClO <sub>4</sub> , tetradec-5- <i>cis</i> -enoyl (unlabeled) CP 90%	C14:1	Please inquire
ULM-10433	DL-Carnitine·HCl, <i>O</i> -palmitoyl (unlabeled) CP 97%	C16	Please inquire
DLM-1263	L-Carnitine·HCl, <i>O</i> -palmitoyl ( <i>N</i> -methyl-D <sub>3</sub> , 98%)	C16	10 mg
ULM-7738	L-Carnitine·HCl, <i>O</i> -palmitoyl (unlabeled)	C16	Please inquire
DLM-9189	L-Carnitine (mono)·ClO <sub>4</sub> , <i>O</i> -3-DL-hydroxypalmitoyl ( <i>N</i> -methyl-D <sub>3</sub> , 98%)	C16-OH	0.1 mg
ULM-8620	L-Carnitine (mono)·ClO <sub>4</sub> , <i>O</i> -3-DL-hydroxypalmitoyl (unlabeled) CP 97%	C16-OH	0.1 mg
DLM-8271	L-Carnitine·HCl, <i>O</i> -octadecanoyl ( <i>N</i> -methyl-D <sub>3</sub> , 98%)	C18	0.1 mg
ULM-7196	L-Carnitine·HCl, <i>O</i> -octadecanoyl (unlabeled) CP 97%	C18	0.1 mg
DLM-6718	L-Carnitine·HCl, <i>O</i> -hexacosanoyl ( <i>N</i> -methyl-D <sub>3</sub> , 98%) CP 95%	C26	Please inquire
DLM-11174	L-Carnitine·HCl, <i>O</i> -hexacosanoyl ( <i>N,N,N</i> -trimethyl-D <sub>9</sub> , 98%) CP 95% (may contain solvent)	C26	Please inquire
ULM-6719	L-Carnitine·HCl, <i>O</i> -hexacosanoyl (unlabeled) CP 95%	C26	Please inquire

For a complete product listing, please visit [isotope.com](https://isotope.com).

## Drugs and Their Metabolites

The field and scope of drug screening/analysis continues to expand worldwide. Example areas of focus include therapeutic drug monitoring, drugs of abuse, prescription monitoring, and clinical toxicology. The nature of those monitored or identified in the MS-based analysis include psychoactive drugs (e.g., benzodiazepines, cannabinoids, hallucinogens), pain-management drugs (e.g., analgesics, opiates, skeletal muscle relaxants), disorder-related treatment drugs (e.g., anticonvulsants/antiepileptics, antipsychotics, erectile dysfunction), and infectious disease or disease-related treatment drugs (e.g., antibiotics, antiarrhythmics).

CIL is pleased to offer a broad collection of unlabeled and stable isotope-labeled standards to aid the qualitative/quantitative analysis of drugs and their metabolites. These encompass a multitude of classes (e.g., analgesics, benzodiazepines, cannabinoids and its agonists, opiate and opioid analgesics, stimulants). The offerings are individual standards and/or class-specific mixtures in predominantly their concentrated solution form.

**Available from CIL for customers in the US, Australia, Canada, and Switzerland. Contact us for sourcing details for other destinations. Products listed with an asterisk are available globally.**

### Alcohol Compounds

Catalog No.	Description	Concentration	Unit Size
E-053	Ethanol-500 (unlabeled)	500 mg/dL in water	10 × 1.2 mL
E-036	Ethanol-400 (unlabeled)	400 mg/dL in water	10 × 1.2 mL
E-033	Ethanol-300 (unlabeled)	300 mg/dL in water	10 × 1.2 mL
E-041	Ethanol-150 (unlabeled)	150 mg/dL in water	10 × 1.2 mL
E-031	Ethanol-100 (unlabeled)	100 mg/dL in water	10 × 1.2 mL
E-029	Ethanol-50 (unlabeled)	50 mg/dL in water	10 × 1.2 mL
E-064	Ethyl sulfate sodium salt (unlabeled)	1 mg/mL in methanol	1 mL
E-063	Ethyl-β-D-glucuronide (D <sub>5</sub> , 98%)	1 mg/mL in methanol	1 mL
E-048	Ethyl-β-D-glucuronide (D <sub>5</sub> , 98%)	100 µg/mL in methanol	1 mL
E-015	Ethyl-β-D-glucuronide (unlabeled)	1 mg/mL in methanol	1 mL
E-016	Ethyl-β-D-glucuronide (unlabeled)	100 µg/mL in methanol	1 mL
A-056	Multicomponent Alcohol Mix 1000 (unlabeled)	1000 µg/mL of each component in water	1.2 mL

### Amphetamines

Catalog No.	Description	Concentration	Unit Size
B-907	Benzyl piperazine·2HCl (D <sub>7</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
B-906	Benzyl piperazine·2HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
B-046	Butylone·HCl (D <sub>3</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
B-045	Butylone·HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
C-028	2R-Cathinone·HCl (unlabeled)	1 mg/mL in methanol	1 mL
C-155	Cathinone·HCl (D <sub>5</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
C-080	Clenbuterol·HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
B-026	4-Bromo-2,5-dimethoxyphenethylamine·HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
E-072	Ethylone·HCl (D <sub>5</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
E-071	Ethylone·HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
F-015	4-Fluoromethcathinone·HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
M-102	DL-MBDB·HCl (unlabeled)	1 mg/mL in methanol	1 mL
M-010	DL-MDA (D <sub>5</sub> , 98%)	100 µg/mL in methanol	1 mL
M-012	DL-MDA (unlabeled)	1000 µg/mL in methanol	1 mL
CLM-10394-B*	DL-MDA·HCl (ring- <sup>13</sup> C <sub>6</sub> , 98%) CP 95%	50 µg/mL in methanol	1 mL
M-067	DL-MDEA (D <sub>5</sub> , 98%)	100 µg/mL in methanol	1 mL
M-065	DL-MDEA (unlabeled)	1000 µg/mL in methanol	1 mL
CLM-10393-B*	DL-MDEA·HCl (ring- <sup>13</sup> C <sub>6</sub> , 98%) CP 95%	50 µg/mL in methanol	1 mL
M-011	DL-MDMA (D <sub>5</sub> , 98%)	100 µg/mL in methanol	1 mL
M-013	DL-MDMA (unlabeled)	1000 µg/mL in methanol	1 mL

\*Products listed with an asterisk are available globally.

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.  
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## Drugs and Their Metabolites (continued)

Catalog No.	Description	Concentration	Unit Size
M-139	Mephedrone-HCl (D <sub>3</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
M-138	Mephedrone-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
M-060	DL-Methamphetamine (D <sub>11</sub> , 98%)	1000 µg/mL in methanol	1 mL
M-059	DL-Methamphetamine (D <sub>11</sub> , 98%)	100 µg/mL in methanol	1 mL
M-023	DL-Methamphetamine (D <sub>5</sub> , 98%)	1000 µg/mL in methanol	1 mL
M-004	DL-Methamphetamine (D <sub>5</sub> , 98%)	100 µg/mL in methanol	1 mL
M-009	DL-Methamphetamine (unlabeled)	1000 µg/mL in methanol	1 mL
CLM-10390-B*	DL-Methamphetamine-HCl (ring- <sup>13</sup> C <sub>6</sub> , 98%) CP 95%	50 µg/mL in methanol	1 mL
M-024	R(-)-Methamphetamine (unlabeled)	1 mg/mL in methanol	1 mL
M-189	(±)-Methcathinone-HCl (D <sub>3</sub> , 98%)	100 µg/mL in acetonitrile (as free base)	1 mL
M-061	2R-Methcathinone-HCl (unlabeled)	1 mg/mL in methanol	1 mL
M-055	2S-Methcathinone-HCl (unlabeled)	1 mg/mL in methanol	1 mL
M-147	Methedrone-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
M-129	Methylephedrine (unlabeled)	1 mg/mL in methanol	1 mL
M-157	Methylhexanamine-HCl (DMAA HCl) (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
M-141	Methylone-HCl (D <sub>3</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
M-140	Methylone-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
N-046	(+)-Norpseudoephedrine-HCl (cathine-HCl) (unlabeled)	100 µg/mL in methanol (as free base)	1 mL
N-087	(±)-Norpseudoephedrine-HCl (D <sub>3</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
P-050	PMA-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
P-051	PMMA-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
P-035	(+)-Pseudoephedrine (unlabeled)	1 mg/mL in methanol	1 mL
P-036	(-)-Pseudoephedrine (unlabeled)	1 mg/mL in methanol	1 mL
P-056	Pseudoephedrine-HCl (D <sub>3</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
P-079	(±)-Phenylephrine-HCl (D <sub>3</sub> , 98%)	100 µg/mL in methanol with 5% 1 M HCl (as free base)	1 mL
P-078	R(-)-Phenylephrine-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
T-920	3-Trifluoromethylphenylpiperazine-HCl (D <sub>4</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
T-045	3-Trifluoromethylphenylpiperazine-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL

## Analgesics

Catalog No.	Description	Concentration	Unit Size
CLM-2436*	Acetaminophen (carbonyl- <sup>13</sup> C, 99%)	neat	Please inquire
CLM-10619*	Acetaminophen (ring- <sup>13</sup> C <sub>6</sub> , 98%)	neat	1 mg
CNLM-3726-1.2*	Acetaminophen (acetyl- <sup>13</sup> C <sub>2</sub> , 99%; <sup>15</sup> N, 98%)	100 µg/mL in acetonitrile	1.2 mL
CNLM-3726*	Acetaminophen (acetyl- <sup>13</sup> C <sub>2</sub> , 99%; <sup>15</sup> N, 98%)	neat	1 g
ULM-7629-1.2*	Acetaminophen (unlabeled)	100 µg/mL in acetonitrile	1.2 mL
CLM-630*	Aminopyrine (N,N-dimethyl- <sup>13</sup> C <sub>2</sub> , 99%)	neat	1 g
N-083	Normeperidine (D <sub>4</sub> , 98%)	1 mg/mL in methanol	1 mL
N-089	Normeperidine (unlabeled)	1 mg/mL in methanol	1 mL
N-017	Normeperidine (unlabeled)	100 µg/mL in methanol	1 mL
N-061	Nortilidine-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
CLM-1296*	Phenacetin (ethoxy-1- <sup>13</sup> C, 99%)	neat	0.5 g, 1 g

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## Anesthetics

Catalog No.	Description	Concentration	Unit Size
A-071	Alfentanil-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
D-046	Dehydronorketamine-HCl (unlabeled)	100 µg/mL in acetonitrile	1 mL
K-003	Ketamine-HCl (D <sub>4</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
K-002	Ketamine-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
L-050	Lidocaine (D <sub>10</sub> , 98%)	100 µg/mL in methanol	1 mL
L-018	Lidocaine (unlabeled)	1 mg/mL in methanol	1 mL
M-156	Methoxetamine-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
N-037	(±)-Norketamine-HCl (D <sub>4</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
N-036	(±)-Norketamine-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
N-124	Norlidocaine (unlabeled)	1 mg/mL in methanol	1 mL
P-077	Propofol (D <sub>17</sub> , 98%)	100 µg/mL in methanol	1 mL
P-076	Propofol (unlabeled)	1 mg/mL in methanol	1 mL
G-006	Sodium γ-hydroxybutyrate (2,2,3,3,4,4-D <sub>6</sub> , 98%)	1000 µg/mL in methanol	1 mL
G-003	Sodium γ-hydroxybutyrate (2,2,3,3,4,4-D <sub>6</sub> , 98%)	100 µg/mL in methanol	1 mL
G-001	Sodium γ-hydroxybutyrate (unlabeled)	1 mg/mL in methanol	1 mL

## Antibiotics

Catalog No.	Description	Concentration	Unit Size
CLM-123*	Erythromycin ( <i>N</i> -methyl- <sup>13</sup> C, 99%)	neat	1 g
CDLM-10030-MT-1.2*	Erythromycin ( <i>N</i> -methyl- <sup>13</sup> C, 99%; D <sub>3</sub> , 98%) CP 97%	100 µg/mL in methyl- <i>tert</i> butyl ester (MTBE)	1.2 mL
CLM-165*	Erythromycin, lactobionate salt ( <i>N</i> -methyl- <sup>13</sup> C, 99%)	neat	1 g
CLM-3758*	Erythromycin, lactobionate salt ( <i>N,N</i> -dimethyl- <sup>13</sup> C <sub>2</sub> , ~90%)	neat	Please inquire
CLM-3045-1.2*	Sulfamethazine (phenyl- <sup>13</sup> C <sub>6</sub> , 99%)	100 µg/mL in acetonitrile	1.2 mL
CLM-3045*	Sulfamethazine (phenyl- <sup>13</sup> C <sub>6</sub> , 99%)	neat	10 mg
ULM-7220-1.2*	Sulfamethazine (unlabeled)	100 µg/mL in acetonitrile	1.2 mL
CLM-7988-A-1.2*	Trimethoprim (pyrimidine-4,5,6- <sup>13</sup> C <sub>3</sub> , 99%)	50 µg/mL in methanol	1.2 mL
ULM-7989-A-1.2*	Trimethoprim (unlabeled)	50 µg/mL in methanol	1.2 mL

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## Drugs and Their Metabolites (continued)

## Anticonvulsants/Antiepileptics

Catalog No.	Description	Concentration	Unit Size
C-121	Carbamazepine-10,11-epoxide (unlabeled)	1 mg/mL in methanol	1 mL
DLM-3025*	5,5-Diphenylhydantoin (phenyl-D <sub>5</sub> , 98%)	neat	10 mg
DLM-324*	5,5-Diphenylhydantoin (diphenyl-D <sub>10</sub> , 98%)	neat	0.01 g, 0.1 g
CNLM-411-1.2*	5,5-Diphenylhydantoin (2- <sup>13</sup> C, 99%; 1,3- <sup>15</sup> N <sub>2</sub> , 98%)	100 µg/mL in methanol	1.2 mL
CNLM-411*	5,5-Diphenylhydantoin (2- <sup>13</sup> C, 99%; 1,3- <sup>15</sup> N <sub>2</sub> , 98%)	neat	0.01 g, 0.05 g
ULM-8533-1.2*	5,5-Diphenylhydantoin (unlabeled)	100 µg/mL in methanol	1.2 mL
G-007	Gabapentin (unlabeled)	1 mg/mL in methanol	1 mL
G-021	Gabapentin (unlabeled)	10 mg/mL in methanol	1 mL
G-901	Gabapentin (D <sub>10</sub> , 98%)	100 µg/mL in methanol	1 mL
L-029	Lacosamide (unlabeled)	1 mg/mL in acetonitrile	1 mL
CNLM-7633*	Lamotrigine (5,6- <sup>13</sup> C <sub>2</sub> , 99%; 5-amino- <sup>15</sup> N, 98%)	neat	10 mg
L-019	Lamotrigine (unlabeled)	1 mg/mL in methanol	1 mL
L-031	Levetiracetam (D <sub>6</sub> , 98%)	1 mg/mL in methanol	1 mL
L-023	Levetiracetam (D <sub>6</sub> , 98%)	100 µg/mL in methanol	1 mL
L-020	Levetiracetam (unlabeled)	1 mg/mL in methanol	1 mL
O-025	Oxcarbazepine (unlabeled)	1 mg/mL in acetonitrile	1 mL
P-067	Phenytoin (D <sub>10</sub> , 98%)	100 µg/mL in methanol	1 mL
P-063	Phenytoin (unlabeled)	1 mg/mL in methanol	1 mL
P-106	Pregabalin ( <sup>13</sup> C <sub>3</sub> , 98%)	100 µg/mL in methanol	1 mL
P-072	Pregabalin (D <sub>6</sub> , 98%)	100 µg/mL in methanol	1 mL
P-066	Pregabalin (unlabeled)	1 mg/mL in methanol	1 mL
P-075	Primidone (unlabeled)	1 mg/mL in methanol	1 mL
T-041	Topiramate (D <sub>12</sub> , 98%)	100 µg/mL in methanol	1 mL
T-039	Topiramate (unlabeled)	1000 µg/mL in methanol	1 mL
V-029	Valproic acid (D <sub>6</sub> , 98%)	1 mg/mL in methanol	1 mL
V-006	Valproic acid (unlabeled)	1 mg/mL in methanol	1 mL
Z-005	Zonisamide (unlabeled)	1 mg/mL in methanol	1 mL

## Antidepressants

Catalog No.	Description	Concentration	Unit Size
A-121	Amitriptyline-HCl (D <sub>3</sub> , 98%)	1 mg/mL in methanol (as free base)	1 mL
A-085	Amitriptyline-HCl (D <sub>3</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
DLM-2762*	Amitriptyline-HCl (N-methyl-D <sub>3</sub> , 98%)	neat	Please inquire
A-923	Amitriptyline-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
B-034	Bupropion-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
DLM-2790*	Buspirone-HCl (butyl-D <sub>8</sub> , 98%)	neat	Please inquire
C-090	Citalopram hydrobromide (D <sub>6</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
C-095	Citalopram hydrobromide (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
C-057	Citalopram hydrobromide (unlabeled)	100 µg/mL in methanol (as free base)	1 mL
C-116	Clomipramine-HCl (D <sub>3</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
C-118	Clomipramine-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
D-116	Desipramine-HCl (D <sub>3</sub> , 98%)	1 mg/mL in methanol (as free base)	1 mL
D-903	Desipramine-HCl (D <sub>3</sub> , 98%)	100 µg/mL in methanol	1 mL
DLM-3020*	Desipramine-HCl (2,4,6,8-D <sub>4</sub> , 98%)	neat	5 mg
D-906	Desipramine-HCl (unlabeled)	1 mg/mL in methanol	1 mL
D-047	N-Desmethylocitalopram-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
D-916	N-Desmethyloclopramine (unlabeled)	1 mg/mL in methanol	1 mL
D-113	N-Desmethyloclopramine-HCl (D <sub>3</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL

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Catalog No.	Description	Concentration	Unit Size
D-007	Desmethyldoxepin (unlabeled)	1 mg/mL in methanol	1 mL
D-075	<i>N</i> -Desmethyldoxepin-HCl ( <i>cis/trans</i> ) (D <sub>3</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
D-012	(±)- <i>N</i> -Desmethylselegiline (unlabeled)	1 mg/mL in methanol	1 mL
D-920	<i>N</i> -Desmethyltrimipramine, maleate salt (unlabeled)	1 mg/mL in methanol	1 mL
V-027	(±)- <i>O</i> -Desmethylvenlafaxine (D <sub>6</sub> , 98%)	100 µg/mL in methanol	1 mL
V-007	<i>O</i> -Desmethylvenlafaxine (unlabeled)	100 µg/mL in methanol	1 mL
D-173	Dothiepin-HCl ( <i>cis/trans</i> ) (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
D-060	Doxepin-HCl ( <i>cis/trans</i> ) (D <sub>3</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
D-927	Doxepin-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
D-068	Duloxetine-HCl (D <sub>3</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
D-044	Duloxetine-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
F-038	Fluoxetine oxalate (D <sub>6</sub> , 98%)	1 mg/mL in methanol (as free base)	1 mL
F-919	Fluoxetine oxalate (D <sub>6</sub> , 98%)	100 µg/mL in methanol	1 mL
F-918	Fluoxetine-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
F-045	Fluvoxamine maleate (D <sub>3</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
F-040	Fluvoxamine maleate (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
H-062	(±)-Hydroxybupropion (D <sub>6</sub> , 98%)	100 µg/mL in acetonitrile	1 mL
H-066	(±)-Hydroxybupropion (unlabeled)	1 mg/mL in acetonitrile	1 mL
I-902	Imipramine (unlabeled)	1 mg/mL in methanol	1 mL
DLM-3035*	Imipramine-HCl (2,4,6,8-D <sub>4</sub> , 98%) CP 97%	neat	2 mg
I-903	Imipramine maleate (D <sub>3</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
M-920	Maprotiline-HCl	1 mg/mL in methanol (as free base)	1 mL
M-901	Mianserin (D <sub>3</sub> , 98%)	100 µg/mL in methanol	1 mL
M-919	Mianserin-HCl (unlabeled)	1000 µg/mL in methanol (as free base)	1 mL
M-191	Mirtazapine (D <sub>3</sub> , 98%)	100 µg/mL in methanol	1 mL
M-128	Mirtazapine (unlabeled)	1 mg/mL in methanol	1 mL
N-102	Norfluoxetine oxalate (D <sub>6</sub> , 98%)	1 mg/mL in methanol (as free base)	1 mL
N-922	Norfluoxetine oxalate (D <sub>6</sub> , 98%)	100 µg/mL in methanol	1 mL
N-923	Norfluoxetine oxalate (unlabeled)	1000 µg/mL in methanol	1 mL
N-049	Norsertaline-HCl (unlabeled)	100 µg/mL in methanol (as free base)	1 mL
N-090	Nortriptyline-HCl (D <sub>3</sub> , 98%)	1 mg/mL in methanol (as free base)	1 mL
N-902	Nortriptyline-HCl (D <sub>3</sub> , 98%)	100 µg/mL in methanol	1 mL
DLM-3038*	Nortriptyline-HCl (methyl-D <sub>3</sub> , 98%)	neat	5 mg, 0.1 g
N-907	Nortriptyline-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
P-915	Paroxetine maleate (D <sub>6</sub> , 98%)	100 µg/mL in methanol	1 mL
P-916	Paroxetine maleate (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
P-088	Protriptyline-HCl (D <sub>3</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
P-903	Protriptyline-HCl (unlabeled)	1 mg/mL in methanol	1 mL
S-021	Sertraline (unlabeled)	1 mg/mL in methanol	1 mL
S-026	Sertraline-HCl (D <sub>3</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
T-079	Trazodone-HCl (D <sub>6</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
T-030	Trazodone-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
T-904	Trimipramine (unlabeled)	1 mg/mL in methanol	1 mL
V-009	Venlafaxine-HCl (D <sub>6</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
V-004	Venlafaxine-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL

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**Drugs and Their Metabolites** *(continued)***Antipsychotics**

Catalog No.	Description	Concentration	Unit Size
A-081	Aripiprazole (D <sub>8</sub> , 98%)	100 µg/mL in acetonitrile	1 mL
A-119	Aripiprazole (unlabeled)	1 mg/mL in methanol:water (1:1) with 1% 1 N HCl	1 mL
C-904	Chlorpromazine-HCl (unlabeled)	1 mg/mL in methanol	1 mL
C-107	Chlorpromazine maleate (D <sub>3</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
C-091	Clozapine (D <sub>4</sub> , 98%)	100 µg/mL in methanol	1 mL
DLM-2816*	Clozapine (4-methylpiperazinyl-D <sub>4</sub> , 97%)	neat	5 mg, 10 mg
C-059	Clozapine (unlabeled)	1000 µg/mL in methanol	1 mL
D-169	N-Desmethylozapine (D <sub>8</sub> , 98%)	100 µg/mL in methanol	1 mL
D-048	N-Desmethylozapine (unlabeled)	1 mg/mL in methanol	1 mL
D-069	N-Desmethylozapine (unlabeled)	1 mg/mL in acetonitrile:water (1:1) (as free base)	1 mL
F-903	Fluphenazine dihydrochloride (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
H-002	Haloperidol (D <sub>4</sub> , 98%)	100 µg/mL in methanol	1 mL
H-030	Haloperidol (unlabeled)	1 mg/mL in methanol	1 mL
H-081	7-Hydroxyquetiapine (unlabeled)	1 mg/mL in methanol	1 mL
H-076	9-Hydroxyrisperidone (unlabeled)	1 mg/mL in methanol	1 mL
L-035	Lurasidone-HCl (D <sub>8</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
N-070	Norquetiapine-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
O-035	Olanzapine (D <sub>8</sub> , 98%)	100 µg/mL in acetonitrile	1 mL
O-024	Olanzapine (unlabeled)	1 mg/mL in acetonitrile	1 mL
Q-002	Quetiapine hemifumarate (D <sub>8</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
Q-001	Quetiapine hemifumarate (unlabeled)	1 mg/mL in methanol	1 mL
R-006	Risperidone (unlabeled)	1 mg/mL in methanol	1 mL
T-905	Thioridazine (unlabeled)	1 mg/mL in methanol	1 mL
Z-018	Ziprasidone-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL

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## Barbituates

Catalog No.	Description	Concentration	Unit Size
A-102	Amobarbital (D <sub>5</sub> , 98%)	100 µg/mL in methanol	1 mL
A-020	Amobarbital (unlabeled)	1 mg/mL in methanol	1 mL
B-041	Barbiturate mix – 5 (unlabeled)	250 µg/mL in methanol	1 mL
B-024	Butabarbital (unlabeled)	1 mg/mL in methanol	1 mL
B-030	Butalbital (D <sub>5</sub> , 98%)	1000 µg/mL in methanol	1 mL
B-005	Butalbital (D <sub>5</sub> , 98%)	100 µg/mL in methanol	1 mL
B-006	Butalbital (unlabeled)	1 mg/mL in methanol	1 mL
H-013	Hexobarbital (unlabeled)	1 mg/mL in methanol	1 mL
M-079	Methohexital (D <sub>5</sub> , 98%)	100 µg/mL in methanol	1 mL
P-013	Pentobarbital (D <sub>5</sub> , 98%)	1000 µg/mL in methanol	1 mL
P-009	Pentobarbital (D <sub>5</sub> , 98%)	100 µg/mL in methanol	1 mL
P-010	Pentobarbital (unlabeled)	1 mg/mL in methanol	1 mL
P-017	Phenobarbital (2-methylbutyl-3,3,4,4,4-D <sub>5</sub> , 98%)	1 mg/mL in methanol	1 mL
P-004	Phenobarbital (2-methylbutyl-3,3,4,4,4-D <sub>5</sub> , 98%)	100 µg/mL in methanol	1 mL
P-019	Phenobarbital (5-ethyl-D <sub>5</sub> , 98%)	1000 µg/mL in methanol	1 mL
P-018	Phenobarbital (5-ethyl-D <sub>5</sub> , 98%)	100 µg/mL in methanol	1 mL
DLM-433*	Phenobarbital (ethyl-D <sub>5</sub> , 98%)	neat	0.1 g
P-008	Phenobarbital (unlabeled)	1000 µg/mL in methanol	1 mL
DLM-2659*	DL-Secobarbital (1-methyl-D <sub>3</sub> , butyl-2,2-D <sub>2</sub> , 98%)	neat	Please inquire
S-048	Secobarbital (D <sub>5</sub> , 98%)	1 mg/mL in methanol	1 mL
S-001	Secobarbital (D <sub>5</sub> , 98%)	100 µg/mL in methanol	1 mL
S-002	Secobarbital (unlabeled)	1 mg/mL in methanol	1 mL

\*Products listed with an asterisk are available globally.

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.  
For research use only. Not for use in diagnostic procedures.

## Drugs and Their Metabolites (continued)

## Benzodiazepines

Catalog No.	Description	Concentration	Unit Size
A-910	Alprazolam (D <sub>5</sub> , 98%)	1 mg/mL in methanol	1 mL
A-902	Alprazolam (D <sub>5</sub> , 98%)	100 µg/mL in methanol	1 mL
A-903	Alprazolam (unlabeled)	1000 µg/mL in methanol	1 mL
A-924	7-Aminoclonazepam (D <sub>4</sub> , 98%)	1 mg/mL in acetonitrile	1 mL
A-917	7-Aminoclonazepam (D <sub>4</sub> , 98%)	100 µg/mL in acetonitrile	1 mL
A-916	7-Aminoclonazepam (unlabeled)	1 mg/mL in acetonitrile	1 mL
A-915	7-Aminoclonazepam (unlabeled)	100 µg/mL in acetonitrile	1 mL
A-925	7-Aminoflunitrazepam (D <sub>7</sub> , 98%)	1 mg/mL in acetonitrile	1 mL
A-921	7-Aminoflunitrazepam (D <sub>7</sub> , 98%)	100 µg/mL in acetonitrile	1 mL
A-911	7-Aminoflunitrazepam (unlabeled)	1 mg/mL in acetonitrile	1 mL
A-912	7-Aminoflunitrazepam (unlabeled)	100 µg/mL in acetonitrile	1 mL
A-913	7-Aminonitrazepam (unlabeled)	1 mg/mL in acetonitrile	1 mL
A-914	7-Aminonitrazepam (unlabeled)	100 µg/mL in acetonitrile	1 mL
B-033	Benzodiazepine Multicomponent Mixture – 8 (unlabeled)	250 µg/mL in acetonitrile	1 mL
B-903	Bromazepam (unlabeled)	1 mg/mL in methanol	1 mL
C-912	Chlordiazepoxide (D <sub>5</sub> , 98%)	100 µg/mL in methanol	1 mL
C-022	Chlordiazepoxide (unlabeled)	1 mg/mL in methanol	1 mL
C-149	Clobazam ( <sup>13</sup> C <sub>6</sub> , 98%)	100 µg/mL in methanol	1 mL
CLM-10630-B*	Clobazam (ring-[ $\chi$ ]- <sup>13</sup> C <sub>6</sub> , 98%) CP 95%	50 µg/mL in methanol	1 mL
C-909	Clobazam (unlabeled)	1 mg/mL in methanol	1 mL
CLM-10631-B*	Clonazepam (ring-[ $\alpha$ ]- <sup>13</sup> C <sub>6</sub> , 98%) CP 95%	50 µg/mL in methanol	1 mL
C-906	Clonazepam (D <sub>4</sub> , 98%)	1 mg/mL in methanol	1 mL
C-905	Clonazepam (D <sub>4</sub> , 98%)	100 µg/mL in methanol	1 mL
C-907	Clonazepam (unlabeled)	1 mg/mL in methanol	1 mL
D-142	Delorazepam (unlabeled)	100 µg/mL in acetonitrile	1 mL
D-079	Demoxepam (unlabeled)	1 mg/mL in acetonitrile	1 mL
D-924	Desalkylflurazepam (D <sub>4</sub> , 98%)	100 µg/mL in methanol	1 mL
D-915	Desalkylflurazepam (unlabeled)	1 mg/mL in methanol	1 mL
D-145	N-Desmethyclobazam (unlabeled)	1 mg/mL in 10% dimethyl sulfoxide (DMSO) in acetonitrile	1 mL
D-049	N-Desmethyclobazam (unlabeled)	100 µg/mL in acetonitrile	1 mL
D-925	N-Desmethyflunitrazepam (D <sub>4</sub> , 98%)	100 µg/mL in methanol	1 mL
D-918	N-Desmethyflunitrazepam (unlabeled)	1 mg/mL in methanol	1 mL
CLM-10632-B*	Diazepam (ring-[ $\alpha$ ]- <sup>13</sup> C <sub>6</sub> , 98%) CP 95%	50 µg/mL in methanol	1 mL
D-910	Diazepam (D <sub>5</sub> , 98%)	1 mg/mL in methanol	1 mL
D-902	Diazepam (D <sub>5</sub> , 98%)	100 µg/mL in methanol	1 mL
DLM-1886*	Diazepam (phenyl-D <sub>5</sub> , 98%)	neat	Please inquire
D-907	Diazepam (unlabeled)	1000 µg/mL in methanol	1 mL
D-159	Diclazepam (unlabeled)	1 mg/mL in acetonitrile	1 mL
E-903	Estazolam (D <sub>5</sub> , 98%)	100 µg/mL in methanol	1 mL
E-901	Estazolam (unlabeled)	1 mg/mL in methanol	1 mL
F-915	Flunitrazepam (D <sub>7</sub> , 98%)	100 µg/mL in methanol	1 mL
F-907	Flunitrazepam (unlabeled)	1 mg/mL in methanol	1 mL
F-003	Flurazepam (unlabeled)	1 mg/mL in methanol	1 mL
H-919	2-Hydroxyethylflurazepam (D <sub>4</sub> , 98%)	100 µg/mL in methanol	1 mL
F-902	2-Hydroxyethylflurazepam (unlabeled)	1 mg/mL in methanol	1 mL
A-908	$\alpha$ -Hydroxyalprazolam (D <sub>5</sub> , 98%)	1000 µg/mL in methanol	1 mL
A-904	$\alpha$ -Hydroxyalprazolam (D <sub>5</sub> , 98%)	100 µg/mL in methanol	1 mL
A-907	$\alpha$ -Hydroxyalprazolam (unlabeled)	1 mg/mL in methanol	1 mL

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Catalog No.	Description	Concentration	Unit Size
H-921	$\alpha$ -Hydroxymidazolam (D <sub>4</sub> , 98%)	100 µg/mL in methanol	1 mL
H-922	$\alpha$ -Hydroxymidazolam (unlabeled)	1 mg/mL in methanol	1 mL
H-902	$\alpha$ -Hydroxymidazolam (unlabeled)	100 µg/mL in methanol	1 mL
T-916	$\alpha$ -Hydroxytriazolam (D <sub>4</sub> , 98%)	1 mg/mL in methanol	1 mL
T-909	$\alpha$ -Hydroxytriazolam (D <sub>4</sub> , 98%)	100 µg/mL in methanol	1 mL
T-911	$\alpha$ -Hydroxytriazolam (unlabeled)	1 mg/mL in methanol	1 mL
L-911	Lorazepam (D <sub>4</sub> , 98%)	1 mg/mL in acetonitrile	1 mL
L-902	Lorazepam (D <sub>4</sub> , 98%)	100 µg/mL in acetonitrile	1 mL
L-901	Lorazepam (unlabeled)	1 mg/mL in acetonitrile	1 mL
L-021	Lorezapam glucuronide (unlabeled)	100 µg/mL acetonitrile:water (1:1)	1 mL
L-907	Lormetazepam (unlabeled)	1 mg/mL in methanol	1 mL
M-908	Midazolam (unlabeled)	1 mg/mL in methanol	1 mL
M-918	Midazolam maleate (D <sub>4</sub> , 98%)	100 µg/mL in methanol	1 mL
N-073	Nimetazepam (unlabeled)	1 mg/mL in methanol	1 mL
N-901	Nitrazepam (D <sub>5</sub> , 98%)	100 µg/mL in acetonitrile	1 mL
N-906	Nitrazepam (unlabeled)	1 mg/mL in methanol	1 mL
CLM-10635-B*	Nordiazepam (ring-[ $\alpha$ ]- <sup>13</sup> C <sub>6</sub> , 98%) CP 95%	50 µg/mL in methanol	1 mL
N-911	Nordiazepam (D <sub>5</sub> , 98%)	1 mg/mL in methanol	1 mL
N-903	Nordiazepam (D <sub>5</sub> , 98%)	100 µg/mL in methanol	1 mL
DLM-1885*	Nordiazepam (phenyl-D <sub>5</sub> , 98%)	neat	Please inquire
N-905	Nordiazepam (unlabeled)	1000 µg/mL in methanol	1 mL
O-904	Oxazepam (D <sub>5</sub> , 98%)	1000 µg/mL in methanol	1 mL
O-901	Oxazepam (D <sub>5</sub> , 98%)	100 µg/mL in acetonitrile	1 mL
DLM-1888*	Oxazepam (phenyl-D <sub>5</sub> , 98%)	neat	Please inquire
O-902	Oxazepam (unlabeled)	1 mg/mL in acetonitrile	1 mL
O-023	Oxazepam glucuronide (unlabeled)	100 µg/mL in methanol	1 mL
P-080	Phenazepam (unlabeled)	1 mg/mL in acetonitrile	1 mL
CLM-10637-B*	Prazepam (ring-[ $\alpha$ ]- <sup>13</sup> C <sub>6</sub> , 98%) CP 95%	50 µg/mL in methanol	1 mL
P-906	Prazepam (unlabeled)	1 mg/mL in methanol	1 mL
CLM-10638-B*	Temazepam (ring-[ $\alpha$ ]- <sup>13</sup> C <sub>6</sub> , 98%) CP 95%	50 µg/mL in methanol	1 mL
T-912	Temazepam (D <sub>5</sub> , 98%)	1 mg/mL in methanol	1 mL
T-902	Temazepam (D <sub>5</sub> , 98%)	100 µg/mL in methanol	1 mL
T-907	Temazepam (unlabeled)	1000 µg/mL in methanol	1 mL
T-050	Temazepam glucuronide, lithium salt (unlabeled) (in solution)	100 µg/mL in methanol (as free acid)	1 mL
CLM-10640-B*	Triazolam (ring-[ $\alpha$ ]- <sup>13</sup> C <sub>6</sub> , 98%) CP 95%	50 µg/mL in methanol	1 mL
T-908	Triazolam (D <sub>4</sub> , 98%)	100 µg/mL in methanol	1 mL
T-910	Triazolam (unlabeled)	1 mg/mL in methanol	1 mL

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Drugs and Their Metabolites *(continued)*

## Cannabinoids and Its Agonists

Catalog No.	Description	Concentration	Unit Size
S-065	AB-FUBINACA (unlabeled)	100 µg/mL in methanol	1 mL
S-059	AM-2201 4-hydroxypentyl metabolite (unlabeled)	100 µg/mL in methanol	1 mL
S-088	Apinaca (AKB-48) 5-hydroxypentyl metabolite (D <sub>4</sub> , 98%)	100 µg/mL in methanol	1 mL
S-087	Apinaca (AKB-48) 5-hydroxypentyl metabolite (unlabeled)	100 µg/mL in methanol	1 mL
DLM-10854-1.2*	Cannabichromene (CBC) (methyl-D <sub>3</sub> , 98%)	100 µg/mL in methanol	1.2 mL
DLM-10854*	Cannabichromene (CBC) (methyl-D <sub>3</sub> , 98%)	neat	Please inquire
ULM-10878-1.2*	Cannabichromene (CBC) (unlabeled)	1000 µg/mL in methanol	1.2 mL
C-150	Cannabichromenic acid (CBCA) (unlabeled)	1 mg/mL in acetonitrile	1 mL
C-154	(±)-Cannabicyclol (CBL) (unlabeled)	1 mg/mL in acetonitrile	1 mL
C-045	(±)-Cannabidiol (CBD) (unlabeled)	1000 µg/mL in methanol	1 mL
DLM-10855-1.2*	Cannabidiol (CBD) (D <sub>3</sub> , 98%)	100 µg/mL in methanol	1.2 mL
DLM-10855*	Cannabidiol (CBD) (D <sub>3</sub> , 98%)	neat	Please inquire
ULM-10876-1.2*	Cannabidiol (CBD) (unlabeled)	1000 µg/mL in methanol	1.2 mL
DLM-11140-1.2	Cannabidivarin (CBDV) (methyl-D <sub>3</sub> , 98%)	100 µg/mL in methanol	1.2 mL
DLM-11140*	Cannabidivarin (CBDV) (methyl-D <sub>3</sub> , 98%)	neat	Please inquire
DLM-10853-1.2*	Cannabigerol (CBG) (methyl-D <sub>3</sub> , 98%)	100 µg/mL in methanol	1.2 mL
DLM-10853*	Cannabigerol (CBG) (methyl-D <sub>3</sub> , 98%)	neat	Please inquire
ULM-10877-1.2*	Cannabigerol (CBG) (unlabeled)	1000 µg/mL in methanol	1.2 mL
DLM-10847-1.2*	Cannabinol (CBN) (methyl-D <sub>3</sub> , 98%)	100 µg/mL in methanol	1.2 mL
DLM-10847*	Cannabinol (CBN) (methyl-D <sub>3</sub> , 98%)	neat	Please inquire
ULM-10875-1.2*	Cannabinol (CBN) (unlabeled)	1000 µg/mL in methanol	1.2 mL
C-046	Cannabinol (CBN) (unlabeled)	1000 µg/mL in methanol	1 mL
DLM-10915-1.2*	Cannabivarin (CBV) (methyl D <sub>3</sub> , 98%) CP 97%	100 µg/mL in methanol	1.2 mL
DLM-10915*	Cannabivarin (CBV) (methyl-D <sub>3</sub> , 98%) CP 97%	neat	Please inquire
ULM-10916-1.2*	Cannabivarin (CBV) (unlabeled) CP 97%	1000 µg/mL in methanol	1.2 mL
C-152	Cannabidivarinic acid (CBDVA) (unlabeled)	1 mg/mL in acetonitrile	1 mL
S-024	HU-210 Spice cannabinoid (unlabeled)	100 µg/mL in methanol	1 mL
S-035	JWH-018 3-Hydroxypentyl metabolite (unlabeled)	100 µg/mL in methanol	1 mL
S-039	JWH-018 4-Hydroxypentyl metabolite (indole-D <sub>5</sub> , 98%)	100 µg/mL in methanol	1 mL
S-054	JWH-018 5-Hydroxypentyl metabolite (unlabeled)	100 µg/mL in methanol	1 mL
S-033	JWH-018 5-Pentanoic acid metabolite (unlabeled)	100 µg/mL in methanol	1 mL
S-025	JWH-018 Spice cannabinoid (unlabeled)	100 µg/mL in methanol	1 mL
S-043	JWH-019 6-Hydroxyhexyl metabolite (unlabeled)	100 µg/mL in methanol	1 mL
S-040	JWH-073 3-Hydroxybutyl metabolite (indole-D <sub>5</sub> , 98%)	100 µg/mL in methanol	1 mL
S-037	JWH-073 3-Hydroxybutyl metabolite (unlabeled)	100 µg/mL in methanol	1 mL
S-036	JWH-073 4-Butanoic acid metabolite (unlabeled)	100 µg/mL in methanol	1 mL
S-053	JWH-073 4-Hydroxybutyl metabolite (unlabeled)	100 µg/mL in methanol	1 mL
S-027	JWH-073 Spice cannabinoid (unlabeled)	100 µg/mL in acetonitrile	1 mL
S-056	JWH-122 4-Hydroxypentyl metabolite (indole-D <sub>5</sub> , 98%)	100 µg/mL in methanol	1 mL
S-049	JWH-122 4-Hydroxypentyl metabolite (unlabeled)	100 µg/mL in methanol	1 mL
S-046	JWH-250 4-Hydroxypentyl metabolite (unlabeled)	100 µg/mL in methanol	1 mL
S-045	JWH-250 5-Hydroxypentyl metabolite (unlabeled)	100 µg/mL in methanol	1 mL
S-075	5-Fluoro PB-22 (unlabeled)	100 µg/mL in acetonitrile	1 mL
S-076	PB-22 (unlabeled)	100 µg/mL in acetonitrile	1 mL
S-038	Spice cannabinoid mix (unlabeled)	100 µg/mL of each component in acetonitrile	1 mL
T-032	(-)-Δ <sup>8</sup> -THC (unlabeled)	1 mg/mL in methanol	1 mL
T-011	(-)-Δ <sup>9</sup> -THC (D <sub>3</sub> , 98%)	1 mg/mL in methanol	1 mL
T-003	(-)-Δ <sup>9</sup> -THC (D <sub>3</sub> , 98%)	100 µg/mL in methanol	1 mL
DLM-10846-1.2*	(-)-Δ <sup>9</sup> -(THC) (methyl-D <sub>3</sub> , 98%)	100 µg/mL in methanol	1.2 mL
T-005	(-)-Δ <sup>9</sup> -THC (unlabeled)	1 mg/mL in methanol	1 mL

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Catalog No.	Description	Concentration	Unit Size
T-047	(±)-Δ <sup>9</sup> -THC (unlabeled) for qualitative use only	100 µg/mL in heptane	1 mL
H-041	(±)-11-hydroxy-Δ <sup>9</sup> -THC (D <sub>3</sub> , 98%)	100 µg/mL in methanol	1 mL
H-027	(±)-11-hydroxy-Δ <sup>9</sup> -THC (unlabeled)	1 mg/mL in methanol	1 mL
H-026	(±)-11-hydroxy-Δ <sup>9</sup> -THC (unlabeled)	100 µg/mL in methanol	1 mL
T-019	(-)-11-nor-9-carboxy-Δ <sup>9</sup> -THC (unlabeled)	1 mg/mL in methanol	1 mL
T-018	(-)-11-nor-9-carboxy-Δ <sup>9</sup> -THC (unlabeled)	100 µg/mL in methanol	1 mL
T-008	DL-11-nor-9-carboxy-Δ <sup>9</sup> -THC (D <sub>3</sub> , 98%)	1000 µg/mL in methanol	1 mL
T-004	DL-11-nor-9-carboxy-Δ <sup>9</sup> -THC (D <sub>3</sub> , 98%)	100 µg/mL in methanol	1 mL
T-009	DL-11-nor-9-carboxy-Δ <sup>9</sup> -THC (D <sub>9</sub> , 98%)	1 mg/mL in methanol	1 mL
T-007	DL-11-nor-9-carboxy-Δ <sup>9</sup> -THC (D <sub>9</sub> , 98%)	100 µg/mL in methanol	1 mL
T-006	DL-11-nor-9-carboxy-Δ <sup>9</sup> -THC (unlabeled)	100 µg/mL in methanol	1 mL
T-038	(+)-11-nor-Δ <sup>9</sup> -THC-9-carboxylic acid glucuronide (unlabeled)	100 µg/mL in methanol	1 mL
T-080	(±)- <i>cis</i> -11-nor-Δ <sup>9</sup> -THC-9-carboxy glucuronide (D <sub>3</sub> , 98%)	100 µg/mL in methanol	1 mL
T-033	exo-THC (unlabeled)	1 mg/mL in methanol	1 mL
T-108	THC Cannabinoids Mixture – 3 (unlabeled)	1 mg/mL of each component in methanol	0.5 mL
DLM-10707-1.2*	Tetrahydrocannabivarin (THCV) (propyl-3,3,3-D <sub>3</sub> , 98%) CP 97%	100 µg/mL in methanol	1.2 mL
DLM-10707*	Tetrahydrocannabivarin (THCV) (propyl-3,3,3-D <sub>3</sub> , 98%) CP 97%	neat	Please inquire
S-077	UR-144 5-Hydroxypentyl metabolite (unlabeled)	100 µg/mL in methanol	1 mL
S-090	UR-144 5-Pentanoic acid metabolite (indole-D <sub>5</sub> , 98%)	100 µg/mL in methanol	1 mL
S-078	UR-144 5-Pentanoic acid metabolite (unlabeled)	100 µg/mL in methanol	1 mL

## Cardiac Drugs

Catalog No.	Description	Concentration	Unit Size
A-083	Amiodarone-HCl (D <sub>4</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
A-060	Amiodarone-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
A-072	Atenolol (unlabeled)	1 mg/mL in acetonitrile	1 mL
A-046	Atropine (unlabeled)	1 mg/mL in methanol	1 mL
DLM-1287-1.2*	Clonidine-HCl (4,4,5,5-imidazoline-D <sub>4</sub> , 98%)	100 µg/mL in methanol	1.2 mL
DLM-1287*	Clonidine-HCl (4,4,5,5-imidazoline-D <sub>4</sub> , 98%) CP 95%	neat	5 mg, 10 mg
D-029	Digoxin (unlabeled)	1 mg/mL in methanol	1 mL
D-035	Diltiazem-HCl (unlabeled)	1000 µg/mL in acetonitrile	1 mL
DLM-2745*	Enalapril maleate (phenyl-D <sub>5</sub> , 98%)	neat	Please inquire
F-017	(±)-Flecainide (unlabeled)	1 mg/mL in methanol	1 mL
F-005	Furosemide (unlabeled)	1 mg/mL in methanol	1 mL
H-001	Hydrochlorothiazide (unlabeled)	1 mg/mL in methanol	1 mL
CNLM-10539*	Mecamylamine-HCl (tetramethyl- <sup>13</sup> C <sub>4</sub> , 99%; <sup>15</sup> N, 98%)	neat	1 mg, 10 mg
M-123	Metoprolol tartrate (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
DLM-10407*	Moricizine hydrochloride (D <sub>8</sub> , 98%) CP 95%	neat	1 mg
P-055	Propranolol-HCl (unlabeled)	100 µg/mL in methanol	1 mL
V-002	Verapamil-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL

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**Drugs and Their Metabolites** *(continued)***Cocaine and Its Metabolites**

Catalog No.	Description	Concentration	Unit Size
A-034	Anhydroecgonine, methyl ester (unlabeled)	1 mg/mL in acetonitrile	1 mL
B-008	Benzoylecgonine (D <sub>3</sub> , 98%)	1000 µg/mL in methanol	1 mL
B-001	Benzoylecgonine (D <sub>3</sub> , 98%)	100 µg/mL in methanol	1 mL
B-014	Benzoylecgonine (D <sub>8</sub> , 98%)	1 mg/mL in methanol	1 mL
B-013	Benzoylecgonine (D <sub>8</sub> , 98%)	100 µg/mL in methanol	1 mL
B-004	Benzoylecgonine (unlabeled)	1000 µg/mL in methanol	1 mL
C-009	Cocaethylene (D <sub>3</sub> , 98%)	100 µg/mL in acetonitrile	1 mL
C-024	Cocaethylene (D <sub>8</sub> , 98%)	100 µg/mL in acetonitrile	1 mL
C-010	Cocaethylene (unlabeled)	1 mg/mL in acetonitrile	1 mL
C-014	Cocaine (D <sub>3</sub> , 98%)	1000 µg/mL in acetonitrile	1 mL
C-004	Cocaine (D <sub>3</sub> , 98%)	100 µg/mL in acetonitrile	1 mL
C-008	Cocaine (unlabeled)	1000 µg/mL in acetonitrile	1 mL
C-088	Cocaine Multicomponent Mixture – 4 (unlabeled)	250 µg/mL of each component in acetonitrile	1 mL
E-002	Ecgonine, methyl ester (D <sub>3</sub> , 98%)	100 µg/mL in acetonitrile	1 mL
E-001	Ecgonine, methyl ester (unlabeled)	1000 µg/mL in acetonitrile	1 mL
E-004	Ecgonine-HCl (unlabeled)	1000 µg/mL in methanol	1 mL
H-017	m-Hydroxybenzoylecgonine (unlabeled)	1 mg/mL in methanol	1 mL
H-119	m-Hydroxycocaine (unlabeled)	1 mg/mL in acetonitrile	1 mL
N-034	Norcocaine-HCl (D <sub>3</sub> , 98%)	100 µg/mL in acetonitrile (as free base)	1 mL
N-003	Norcocaine-HCl (unlabeled)	1 mg/mL in acetonitrile	1 mL

**Hallucinogens**

Catalog No.	Description	Concentration	Unit Size
D-102	<i>N,N</i> -Dimethyltryptamine (DMT) (unlabeled)	1 mg/mL in methanol	1 mL
O-013	2-Oxo-3-hydroxy-LSD (unlabeled)	100 µg/mL in acetonitrile	1 mL
L-002	LSD (D <sub>3</sub> , 98%)	100 µg/mL in acetonitrile	1 mL
L-005	LSD (unlabeled)	25 µg/mL in acetonitrile	1 mL
DLM-2646*	5-Methoxytryptamine-HCl (α,α,β,β-D <sub>4</sub> , 98%)	neat	0.01 g, 0.1 g
P-006	Phencyclidine (D <sub>5</sub> , 98%)	1000 µg/mL in methanol	1 mL
P-003	Phencyclidine (D <sub>5</sub> , 98%)	100 µg/mL in methanol	1 mL
P-007	Phencyclidine (unlabeled)	1000 µg/mL in methanol	1 mL
P-098	Psilocin (unlabeled)	100 µg/mL in acetonitrile	1 mL
S-012	Salvinorin A (unlabeled)	1 mg/mL in acetonitrile	1 mL

**Immunosuppressants**

Catalog No.	Description	Concentration	Unit Size
C-139	Cyclosporin A ( <sup>15</sup> N, 98%)	100 µg/mL in acetonitrile	1 mL
C-093	Cyclosporin A (unlabeled)	1 mg/mL in acetonitrile	1 mL
DLM-9855*	Everolimus (2-hydroxyethyl-D <sub>4</sub> , 98%)	neat	1 mg
ULM-9856-C*	Everolimus (unlabeled)	100 µg/mL in methanol	1 mL
ULM-9856*	Everolimus (unlabeled)	neat	10 mg
M-153	Methotrexate (D <sub>3</sub> , 98%)	100 µg/mL in methanol with 0.01 N NaOH	1 mL
M-136	Methotrexate (unlabeled)	1 mg/mL in methanol with 0.1 N sodium hydroxide	1 mL
M-137	Mycophenolic acid (D <sub>3</sub> , 98%)	100 µg/mL in acetonitrile	1 mL
M-106	Mycophenolic acid (unlabeled)	1 mg/mL in acetonitrile	1 mL
DLM-9220*	Rapamycin (D <sub>3</sub> , 98%)	neat	1 mg, 5 mg, 10 mg
S-023	Sirolimus (rapamycin) (D <sub>3</sub> , 98%)	100 µg/mL in acetonitrile	1 mL
S-015	Sirolimus (rapamycin) (unlabeled)	1 mg/mL in acetonitrile	1 mL
T-049	Tacrolimus (unlabeled)	1 mg/mL in acetonitrile	1 mL

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## Opiate and Opiod Analgesics

Catalog No.	Description	Concentration	Unit Size
A-053	6-Acetylcodeine (unlabeled)	1 mg/mL in acetonitrile	1 mL
A-010	6-Acetylmorphine (D <sub>3</sub> , 98%)	1000 µg/mL in acetonitrile	1 mL
A-006	6-Acetylmorphine (D <sub>3</sub> , 98%)	100 µg/mL in acetonitrile	1 mL
A-027	6-Acetylmorphine (D <sub>6</sub> , 98%)	1 mg/mL in acetonitrile	1 mL
A-026	6-Acetylmorphine (D <sub>6</sub> , 98%)	100 µg/mL in acetonitrile	1 mL
A-009	6-Acetylmorphine (unlabeled)	1 mg/mL in acetonitrile	1 mL
A-003	6-Acetylmorphine (unlabeled)	100 µg/mL in acetonitrile	1 mL
A-113	AH-7921·HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
B-908	Buprenorphine (D <sub>4</sub> , 98%)	1 mg/mL in methanol	1 mL
B-901	Buprenorphine (D <sub>4</sub> , 98%)	100 µg/mL in methanol	1 mL
B-044	Buprenorphine (unlabeled)	1 mg/mL in methanol	1 mL
B-902	Buprenorphine (unlabeled)	100 µg/mL in methanol	1 mL
B-035	Buprenorphine glucuronide (unlabeled)	100 µg/mL in methanol	1 mL
B-037	Butorphanol tartrate (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
C-163-1EA	Carfentanil oxalate (D <sub>5</sub> , 98%)	100 µg/mL in methanol (as free base)	0.5 mL
C-007	Codeine (D <sub>3</sub> , 98%)	1000 µg/mL in methanol	1 mL
C-005	Codeine (D <sub>3</sub> , 98%)	100 µg/mL in methanol	1 mL
C-041	Codeine (D <sub>6</sub> , 98%)	1 mg/mL in methanol	1 mL
C-040	Codeine (D <sub>6</sub> , 98%)	100 µg/mL in methanol	1 mL
CNLM-10389-B*	Codeine (9,10,15,16- <sup>13</sup> C <sub>4</sub> , 98%; <sup>15</sup> N, 98%) CP 95%	50 µg/mL in methanol	1 mL
C-006	Codeine (unlabeled)	1 mg/mL in methanol	1 mL
C-015	Codeine (unlabeled)	100 µg/mL in methanol	1 mL
C-138	Codeine-6-β-D-glucuronide (D <sub>3</sub> , 98%)	100 µg/mL in methanol:water (4:1)	1 mL
CNLM-10388-B*	Codeine-6-β-D-glucuronide ( <sup>13</sup> C <sub>10</sub> , 98%; <sup>15</sup> N, 98%) CP 95%	50 µg/mL in methanol:water (4:1)	1 mL
C-126	Codeine-6-β-D-glucuronide (unlabeled)	1 mg/mL in methanol:water (4:1)	1 mL
C-087	Codeine-6-β-D-glucuronide (unlabeled)	100 µg/mL in methanol:water (4:1)	1 mL
D-052	N-Desmethyltapentadol (unlabeled)	1 mg/mL in methanol	1 mL
D-071	Dextromethorphan (D <sub>3</sub> , 98%)	100 µg/mL in methanol	1 mL
D-013	Dextromethorphan (unlabeled)	1 mg/mL in methanol	1 mL
D-041	Dextrorphan (D <sub>3</sub> , 98%)	100 µg/mL in methanol	1 mL
D-034	Dextrorphan tartrate (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
D-021	Dihydrocodeine·HCl (D <sub>6</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
D-019	Dihydrocodeine·HCl (unlabeled)	1 mg/mL in methanol	1 mL
D-033	Dihydromorphine (unlabeled)	1 mg/mL in methanol	1 mL
E-021	EDDP perchlorate (D <sub>3</sub> , 98%)	100 µg/mL in methanol	1 mL
E-022	EDDP perchlorate (unlabeled)	1000 µg/mL in methanol	1 mL
E-006	EDDP perchlorate (unlabeled)	neat	10 mg
E-057	EMDP·HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
E-052	Ethylmorphine (unlabeled)	1 mg/mL in methanol	1 mL
H-037	Heroin (D <sub>9</sub> , 98%)	1 mg/mL in acetonitrile	1 mL
H-036	Heroin (D <sub>9</sub> , 98%)	100 µg/mL in acetonitrile	1 mL
H-038	Heroin (unlabeled)	1 mg/mL in acetonitrile	1 mL
H-008	Hydrocodone (D <sub>3</sub> , 98%)	1000 µg/mL in methanol	1 mL
H-005	Hydrocodone (D <sub>3</sub> , 98%)	100 µg/mL in methanol	1 mL
H-048	Hydrocodone (D <sub>6</sub> , 98%)	1 mg/mL in methanol	1 mL
H-047	Hydrocodone (D <sub>6</sub> , 98%)	100 µg/mL in methanol	1 mL
H-003	Hydrocodone (unlabeled)	1000 µg/mL in methanol	1 mL
H-010	Hydromorphone (D <sub>3</sub> , 98%)	1000 µg/mL in methanol	1 mL
H-006	Hydromorphone (D <sub>3</sub> , 98%)	100 µg/mL in methanol	1 mL
H-049	Hydromorphone (D <sub>6</sub> , 98%)	100 µg/mL in methanol	1 mL
H-004	Hydromorphone (unlabeled)	1000 µg/mL in methanol	1 mL

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## Drugs and Their Metabolites (continued)

Catalog No.	Description	Concentration	Unit Size
H-051	Hydromorphone-3-β-D-glucuronide (unlabeled)	100 µg/mL in methanol:water (1:1)	1 mL
L-044	Levorphanol tartrate (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
M-038	Meperidine (D <sub>4</sub> , 98%)	1000 µg/mL in methanol	1 mL
M-036	Meperidine (D <sub>4</sub> , 98%)	100 µg/mL in methanol	1 mL
M-035	Meperidine (unlabeled)	1000 µg/mL in methanol	1 mL
M-021	(±)-Methadone (D <sub>3</sub> , 98%)	1 mg/mL in methanol	1 mL
M-008	(±)-Methadone (D <sub>3</sub> , 98%)	100 µg/mL in methanol	1 mL
M-089	(±)-Methadone (D <sub>9</sub> , 98%)	1 mg/mL in methanol	1 mL
M-088	(±)-Methadone (D <sub>9</sub> , 98%)	100 µg/mL in methanol	1 mL
M-007	DL-Methadone (unlabeled)	1000 µg/mL in methanol	1 mL
M-006	Morphine (D <sub>3</sub> , 98%)	1000 µg/mL in methanol	1 mL
M-003	Morphine (D <sub>3</sub> , 98%)	100 µg/mL in methanol	1 mL
M-086	Morphine (D <sub>6</sub> , 98%)	1 mg/mL in methanol	1 mL
M-085	Morphine (D <sub>6</sub> , 98%)	100 µg/mL in methanol	1 mL
CNLM-10392-B*	Morphine (9,10,15,16- <sup>13</sup> C <sub>4</sub> , 98%; <sup>15</sup> N, 98%) CP 95%	50 µg/mL in methanol	1 mL
M-005	Morphine (unlabeled)	1 mg/mL in methanol	1 mL
M-030	Morphine (unlabeled)	100 µg/mL in methanol	1 mL
DLM-1881SA*	Morphine-H <sub>2</sub> O (N-methyl-D <sub>3</sub> , 98%)	0.1 mg/mL in methanol	Please inquire
M-017	Morphine-3-β-D-glucuronide (D <sub>3</sub> , 98%)	100 µg/mL in methanol	1 mL
M-031	Morphine-3-β-D-glucuronide (unlabeled)	1 mg/mL in methanol:water (1:1)	1 mL
M-018	Morphine-3-β-D-glucuronide (unlabeled)	100 µg/mL in methanol	1 mL
M-120	Morphine-6-β-D-glucuronide (D <sub>3</sub> , 98%)	100 µg/mL in methanol:water (1:1)	1 mL
CNLM-10391-B*	Morphine-6-β-D-glucuronide ( <sup>13</sup> C <sub>10</sub> , 98%; <sup>15</sup> N, 98%) CP 95%	50 µg/mL in methanol:water (1:4)	1 mL
M-046	Morphine-6-β-D-glucuronide (unlabeled)	1 g/mL in methanol:water (1:1)	1 mL
M-096	Morphine-6-β-D-glucuronide (unlabeled)	100 µg/mL in methanol:water (1:4)	1 mL
M-188	MT-45 dihydrochloride (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
N-051	Nalbuphine-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
N-924	Nalorphine-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
N-004	Naloxone (unlabeled)	1 mg/mL in methanol	1 mL
N-109	Naloxone-3β-D-glucuronide (D <sub>5</sub> , 98%)	100 µg/mL in methanol:water (9:1)	1 mL
N-081	6β-Naltrexol (D <sub>3</sub> , 98%)	100 µg/mL in methanol	1 mL
N-038	6β-Naltrexol (unlabeled)	1 mg/mL in methanol	1 mL
N-104	6β-Naltrexol-3-β-D-glucuronide (unlabeled)	1 mg/mL in methanol:water (4:1)	1 mL
N-047	Naltrexone (D <sub>3</sub> , 98%)	100 µg/mL in methanol	1 mL
CNLM-10639-B*	Naltrexone (9,15,16- <sup>13</sup> C <sub>3</sub> , 98%; <sup>17,15</sup> N, 98%) CP 95%	50 µg/mL in methanol	1 mL
N-007	Naltrexone (unlabeled)	1 mg/mL in methanol	1 mL
N-106	Naltrexone-3-β-D-glucuronide (unlabeled)	100 µg/mL in methanol	1 mL
N-921	Norbuprenorphine (D <sub>3</sub> , 98%)	1 mg/mL in methanol	1 mL
N-920	Norbuprenorphine (D <sub>3</sub> , 98%)	100 µg/mL in methanol	1 mL
N-059	Norbuprenorphine (unlabeled)	1 mg/mL in methanol	1 mL
N-912	Norbuprenorphine (unlabeled)	100 µg/mL in methanol	1 mL
N-045	Norbuprenorphine glucuronide (unlabeled)	100 µg/mL in methanol	1 mL
N-082	Norcodeine (D <sub>3</sub> , 98%)	1 mg/mL in methanol	1 mL
N-005	Norcodeine (unlabeled)	1 mg/mL in methanol	1 mL
N-054	Norhydrocodone-HCl (D <sub>3</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
N-053	Norhydrocodone-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
N-006	Normorphine (unlabeled)	1 mg/mL in methanol	1 mL
N-012	Noroxymorphone-HCl (unlabeled)	100 µg/mL in methanol:dimethyl sulfoxide (DMSO) (4:1) (as free base)	1 mL
N-919	(±)-Norpropoxyphene maleate (D <sub>5</sub> , 98%)	1 mg/mL in methanol	1 mL
N-913	D-Norpropoxyphene maleate (unlabeled)	1000 µg/mL in methanol (as free base)	1 mL
N-904	DL-Norpropoxyphene maleate (D <sub>5</sub> , 98%)	100 µg/mL in methanol	1 mL

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Catalog No.	Description	Concentration	Unit Size
O-020	Opiate Multicomponent Mixture – 5 (unlabeled)	250 µg/mL in methanol	1 mL
O-006	Oxycodone (D <sub>3</sub> , 98%)	1 mg/mL in methanol	1 mL
O-005	Oxycodone (D <sub>3</sub> , 98%)	100 µg/mL in methanol	1 mL
O-008	Oxycodone (D <sub>6</sub> , 98%)	1 mg/mL in methanol	1 mL
O-007	Oxycodone (D <sub>6</sub> , 98%)	100 µg/mL in methanol	1 mL
O-002	Oxycodone (unlabeled)	1000 µg/mL in methanol	1 mL
O-019	Oxymorphone (D <sub>3</sub> , 98%)	1 mg/mL in methanol	1 mL
O-003	Oxymorphone (D <sub>3</sub> , 98%)	100 µg/mL in methanol	1 mL
O-004	Oxymorphone (unlabeled)	1000 µg/mL in methanol	1 mL
O-031	Oxymorphone-3-β-D-glucuronide (internal standard) (D <sub>3</sub> , 98%)	100 µg/mL in methanol:water (1:1)	1 mL
O-030	Oxymorphone-3-β-D-glucuronide (unlabeled)	100 µg/mL in methanol:water (1:1)	1 mL
P-073	Pentazocine (unlabeled)	1 mg/mL in methanol	1 mL
P-011	D-Propoxyphene (unlabeled)	1000 µg/mL in acetonitrile	1 mL
P-904	DL-Propoxyphene (D <sub>5</sub> , 98%)	1 mg/mL in methanol	1 mL
P-901	DL-Propoxyphene (D <sub>5</sub> , 98%)	100 µg/mL in methanol	1 mL
R-026	Remifentanyl acid (unlabeled)	100 µg/mL in acetonitrile	1 mL
S-008	Sufentanyl citrate (unlabeled)	100 µg/mL in methanol (as free base)	1 mL
T-058	Tapentadol-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
T-116	Thebaine (unlabeled)	1 mg/mL in methanol	1 mL
T-068	Tilidine-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
CLM-7491*	<i>cis</i> -(±)-Tramadol-HCl (methoxy- <sup>13</sup> C, 99%)	neat	Please inquire
T-027	<i>cis</i> -Tramadol-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
D-110	<i>N</i> -Desmethyl- <i>cis</i> -tramadol-HCl (D <sub>3</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
D-023	<i>N</i> -Desmethyl- <i>cis</i> -tramadol-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
D-058	<i>O</i> -Desmethyl- <i>cis</i> -tramadol-HCl (D <sub>6</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
T-035	<i>O</i> -Desmethyl- <i>cis</i> -tramadol-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
T-020	Tramadol-HCl ( <sup>13</sup> C, 99%; D <sub>3</sub> , 98%)	1 mg/mL in methanol (as free base)	1 mL
T-029	Tramadol-HCl ( <sup>13</sup> C, 98%; D <sub>3</sub> , 98%)	100 µg/mL in methanol	1 mL

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## Drugs and Their Metabolites (continued)

## Other Compounds

Catalog No.	Description	Concentration	Unit Size
DLM-10575*	Aldox (D <sub>6</sub> , 98%) CP 96%	neat	Please inquire
DLM-10574*	Alexidine-2HCl (D <sub>10</sub> , 98%) CP 97%	neat	Please inquire
A-139	4-ANPP (unlabeled)	100 µg/mL in methanol	0.5 mL
CLM-6585*	Aspirin (acetyl-1- <sup>13</sup> C, 99%)	neat	Please inquire
CLM-3655*	Azidothymidine (AZT) (methyl- <sup>13</sup> C, 99%) CP 96%	neat	10 mg
B-067	(±)-Baclofen (D <sub>4</sub> , 98%)	100 µg/mL in methanol	1 mL
CLM-10608*	1,2-Benzisothiazol-3(2H)-one (ring- <sup>13</sup> C <sub>6</sub> , 95%) CP 95%	neat	Please inquire
DLM-1566*	Benztropine mesylate (N-methyl-D <sub>3</sub> , 98%) CP 95%	neat	10 mg
B-043	Brompheniramine maleate (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
B-023	BSTFA (with 1% TMCS)	–	10 × 1 mL
V-059	β-Carotene (10,10',11,11'- <sup>13</sup> C <sub>4</sub> , 99%)	100 µg/mL in tetrahydrofuran:ethanol (7:3) with 0.1% butylated hydroxytoluene (BHT) (w/v)	1 mL
CLM-1608*	Chloral hydrate (trichloromethyl- <sup>13</sup> C, 97%)	neat	10 mg
DLM-10609*	5-Chloro-2-methyl-4-isothiazolin-3-one (N-methyl-D <sub>3</sub> , 98%)	neat	Please inquire
C-086	Chlorpheniramine maleate (D <sub>6</sub> , 98%)	1 mg/mL in methanol (as free base)	1 mL
C-036	Chlorpheniramine maleate (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
V-060	Coenzyme Q10 (unlabeled)	1 mg/mL in ethanol	1 mL
CLM-10642	p-Coumaric acid (propyl- <sup>13</sup> C <sub>3</sub> , 99%)	neat	1 mg, 5 mg
C-164	Creatinine (unlabeled)	2 mg/mL in methanol:water (1:1)	1 mL
C-114	Cyclobenzaprine-HCl (D <sub>3</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
C-060	Cyclobenzaprine-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
D-039	N-Desethylamodiaquine dihydrochloride (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
D-088	N-Desmethylcyclobenzaprine-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
DLM-7504*	Dexamethasone (4,6α,21,21-D <sub>4</sub> , 96%) may contain D at C-2	neat	Please inquire
D-085	Dexamethasone (unlabeled)	1 mg/mL in methanol	1 mL
D-077	5α-Dihydrotestosterone (16,16,17-D <sub>3</sub> , 98%)	100 µg/mL in methanol	1 mL
D-017	Diphenhydramine (D <sub>3</sub> , 98%)	100 µg/mL in methanol	1 mL
D-015	Diphenhydramine-HCl (unlabeled)	1 mg/mL in methanol	1 mL
CLM-3369*	Dopamine-HCl (ring- <sup>13</sup> C <sub>6</sub> , 99%)	neat	Please inquire
DLM-2181*	Dopamine-HCl (ring-D <sub>3</sub> , 98%)	neat	0.1 g
D-072	Dopamine-HCl (D <sub>4</sub> , 98%)	100 µg/mL in methanol with 5% 1 M HCl (as free base)	1 mL
DLM-2498*	Dopamine-HCl (1,1,2,2-D <sub>4</sub> , 97-98%)	neat	0.01 g, 0.1 g
D-051	Doxylamine (D <sub>5</sub> , 98%)	100 µg/mL in acetonitrile	1 mL
D-045	Doxylamine succinate (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
DLM-2744*	Enalaprilat-H <sub>2</sub> O (phenyl-D <sub>5</sub> , 98%)	neat	Please inquire
E-058	Epitestosterone (unlabeled)	1 mg/mL in acetonitrile	1 mL
CLM-10404-C*	Estradiol undecanoate (2,3,4- <sup>13</sup> C <sub>3</sub> , 98%) CP 95%	100 µg/mL in methanol	1 mL
CLM-10404*	Estradiol undecanoate (2,3,4- <sup>13</sup> C <sub>3</sub> , 98%) CP 95%	neat	1 mg
CLM-10405*	Fenoprofen, sodium salt hydrate (ring- <sup>13</sup> C <sub>6</sub> , 99%)	neat	1 mg
F-035	Fluconazole ( <sup>13</sup> C <sub>3</sub> , 99%)	1 mg/mL in methanol	1 mL
F-031	Fluconazole (unlabeled)	2 mg/mL in methanol	1 mL
DLM-3996*	Glybenclamide (cyclohexylamine-D <sub>11</sub> , 98%)	neat	Please inquire
CLM-373*	Homovanillic acid (1,2- <sup>13</sup> C <sub>2</sub> , 98-99%)	neat	0.1 g
DLM-2738*	Homovanillic acid (phenyl-D <sub>3</sub> , 2,2-D <sub>2</sub> , 96-98%)	neat	0.1 g
COLM-376*	Homovanillic acid (ring- <sup>13</sup> C <sub>6</sub> , 99%; 4-hydroxy- <sup>18</sup> O, 90-95%)	neat	10 mg
H-096	17α-Hydroxyprogesterone (2,2,4,6,6,21,21,21-D <sub>8</sub> , 98%)	100 µg/mL in methanol	1 mL
DLM-10541*	Iopromide (N-methyl-D <sub>3</sub> , 98%)	neat	1 mg
I-021	Itraconazole (D <sub>4</sub> , 98%)	1 mg/mL in methanol with 1% in 1 M HCl	1 mL
CLM-7118*	Ketoconazole (carbonyl- <sup>13</sup> C, 99%)	neat	Please inquire
CNLM-10406*	Kevetrin-HCl ( <sup>13</sup> C <sub>2</sub> , 98%; <sup>15</sup> N <sub>3</sub> , 98%) CP 95%	neat	1 mg

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Catalog No.	Description	Concentration	Unit Size
L-025	(-)-Levamisole-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
M-039	Meprobamate (unlabeled)	1 mg/mL in methanol	1 mL
M-148	(±)-Metanephine-HCl (D <sub>3</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
DLM-7861*	Metformin-HCl (dimethyl-D <sub>6</sub> , 99%)	neat	Please inquire
M-072	Metformin-HCl (unlabeled)	1 mg/mL (as free base)	1 mL
CLM-1280*	Methacetin (methoxy- <sup>13</sup> C, 99%)	neat	1 g, 10 g
M-025	Methamphetamine/Cocaine/Heroin Mix (unlabeled)	250 µg/mL in acetonitrile	1 mL
M-912	Methandienone (unlabeled)	1 mg/mL in 1,2-dimethoxyethane	1 mL
M-014	Methaqualone (D <sub>7</sub> , 98%)	100 µg/mL in methanol	1 mL
M-015	Methaqualone (unlabeled)	1000 µg/mL in methanol	1 mL
M-080	Methylmalonic acid (unlabeled)	1 mg/mL in acetonitrile	1 mL
M-906	17α-Methyltestosterone (unlabeled)	1 mg/mL in 1,2-dimethoxyethane	1 mL
N-050	Nandrolone (unlabeled)	1 mg/mL in acetonitrile	1 mL
CLM-7522*	Naproxen, sodium salt (O-methyl- <sup>13</sup> C, 98%)	neat	Please inquire
V-016	Nicotinamide (vitamin B <sub>3</sub> ) (unlabeled)	1 mg/mL in methanol	1 mL
V-035	Nicotinic acid (vitamin B <sub>3</sub> ) ( <sup>13</sup> C <sub>6</sub> , 99%)	100 µg/mL in methanol	1 mL
V-017	Nicotinic acid (vitamin B <sub>3</sub> ) (unlabeled)	1 mg/mL in methanol	1 mL
N-043	(±)-Norephedrine-HCl (D <sub>3</sub> , 98%)	1 mg/mL in methanol (as free base)	1 mL
N-069	(±)-Norepinephrine-HCl (D <sub>6</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
N-068	(±)-Normetanephine-HCl (D <sub>3</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
DLM-8609*	DL-Normetanephine-HCl (α,β,β-D <sub>3</sub> , 98%)	neat	5 mg, 10 mg
DLM-10618*	Obeticholic acid (2,2,4,4-D <sub>4</sub> , 98%)	neat	1 mg
O-034	Over-the-Counter Multicomponent Mixture – 6 (unlabeled)	100 µg/mL in acetonitrile	1 mL
P-045	Pheniramine (unlabeled)	1 mg/mL in methanol	1 mL
P-038	(±)-Phenylpropanolamine-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
P-108	Posaconazole (D <sub>4</sub> , 98%)	1 mg/mL in methanol	1 mL
CLM-10557*	Probucol (propyl- <sup>13</sup> C <sub>3</sub> , 99%) CP 96%	neat	0.01 g, 0.05 g
V-011	Retinol (vitamin A) (unlabeled)	100 µg/mL in ethanol with 0.1% (w/v) butylated hydroxytoluene (BHT)	1 mL
V-067	(-)-Riboflavin (vitamin B <sub>2</sub> ) (unlabeled)	100 µg/mL in 1% ammonium acetate in methanol:water (1:1)	1 mL
S-042	Salicylic acid (D <sub>4</sub> , 98%)	100 µg/mL in acetonitrile	1 mL
S-019	Salicylic acid (unlabeled)	1 mg/mL in acetonitrile	1 mL
S-098	(-)-Scopolamine HBR (unlabeled)	1 mg/mL in 10% water in acetonitrile (as free base)	1 mL
S-011	Sibutramine-HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
S-010	Sildenafil (unlabeled)	1 mg/mL in methanol	1 mL
ULM-10473-C*	Stanozolol (unlabeled)	100 µg/mL in methanol	1 mL
CLM-7119*	Temozolomide (methyl- <sup>13</sup> C, 99%)	neat	Please inquire
V-014	Thiamine-HCl (vitamin B <sub>1</sub> ) (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
T-085	Tizanidine-HCl (unlabeled)	500 µg/mL in methanol	1 mL
V-021	(+)-γ-Tocopherol (vitamin E) (unlabeled)	1 mg/mL in methanol	1 mL
V-020	(±)-α-Tocopherol (vitamin E) (unlabeled)	1 mg/mL in methanol	1 mL
CNLM-9258*	1,2,4-Triazole (3,5- <sup>13</sup> C <sub>2</sub> , 99%; 1,2,4- <sup>15</sup> N <sub>3</sub> , 98%)	neat	1 mg, 5 mg
V-902	Vardenafil dihydrochloride (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
V-042	Vitamin K <sub>2</sub> (MK-4) ( <sup>13</sup> C <sub>6</sub> , 99%)	10 µg/mL in acetonitrile	1 mL
V-036	(±)-Voriconazole (D <sub>3</sub> , 98%)	1 mg/mL in methanol	1 mL
CDLM-10540*	Yohimbine (methyl- <sup>13</sup> C, 99%; methyl-D <sub>3</sub> ester, 98%)	neat	5 mg, 10 mg
Z-010	Zaleplon (D <sub>4</sub> , 98%)	100 µg/mL in methanol	1 mL
Z-004	Zaleplon (unlabeled)	1 mg/mL in methanol	1 mL

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**Drugs and Their Metabolites** *(continued)*

Catalog No.	Description	Concentration	Unit Size
Z-001	Zolpidem (D <sub>6</sub> , 98%)	100 µg/mL in methanol	1 mL
Z-008	Zolpidem (D <sub>7</sub> , 98%)	100 µg/mL in methanol	1 mL
CNLM-10641-B*	Zolpidem (carbonyl-1,2- <sup>13</sup> C <sub>2</sub> , 98%; amide- <sup>15</sup> N, 98%) CP 95%	50 µg/mL in methanol	1 mL
Z-017	Zolpidem (unlabeled)	1 mg/mL in methanol	1 mL
Z-007	Zolpidem phenyl-4-carboxylic acid (unlabeled)	500 µg/mL in acetonitrile:water (1:1)	1 mL
Z-902	Zopiclone (D <sub>4</sub> , 98%)	1 mg/mL in acetonitrile	1 mL
Z-003	Zopiclone (unlabeled)	1 mg/mL in acetonitrile	1 mL

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## Stimulants

Catalog No.	Description	Concentration	Unit Size
A-050	Amine Mixture – 6 (unlabeled)	250 µg/mL in methanol	1 mL
A-013	(±)-Amphetamine (D <sub>5</sub> , 98%)	1000 µg/mL in methanol	1 mL
A-005	(±)-Amphetamine (D <sub>5</sub> , 98%)	100 µg/mL in methanol	1 mL
A-002	(±)-Amphetamine (ring-D <sub>5</sub> , 98%)	100 µg/mL in methanol	1 mL
A-008	(±)-Amphetamine (unlabeled)	1 mg/mL in methanol	1 mL
A-045	DL-Amphetamine (D <sub>6</sub> , 98%)	1000 µg/mL in methanol	1 mL
A-044	DL-Amphetamine (D <sub>6</sub> , 98%)	100 µg/mL in methanol	1 mL
A-018	DL-Amphetamine (D <sub>8</sub> , 98%)	1000 µg/mL in methanol	1 mL
A-017	DL-Amphetamine (D <sub>8</sub> , 98%)	100 µg/mL in methanol	1 mL
A-019	DL-Amphetamine (D <sub>11</sub> , 98%)	1000 µg/mL in methanol	1 mL
A-016	DL-Amphetamine (D <sub>11</sub> , 98%)	100 µg/mL in methanol	1 mL
A-007	DL-Amphetamine (unlabeled)	1000 µg/mL in methanol	1 mL
CLM-10387-B*	DL-Amphetamine·HCl (ring- <sup>13</sup> C <sub>6</sub> , 98%) CP 95%	50 µg/mL in methanol	1 mL
A-049	R(-) Amphetamine (unlabeled)	1 mg/mL in methanol	1 mL
A-100	Anabasine·HCl (D <sub>4</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
CLM-728*	Caffeine (3-methyl- <sup>13</sup> C, 99%)	neat	0.5 g
C-082	Caffeine ( <sup>13</sup> C <sub>3</sub> , 99%)	1 mg/mL in methanol	1 mL
CLM-514-1.2*	Caffeine (trimethyl- <sup>13</sup> C <sub>3</sub> , 99%)	100 µg/mL in methanol	1.2 mL
CLM-514*	Caffeine (trimethyl- <sup>13</sup> C <sub>3</sub> , 99%)	neat	1 g
NLM-332*	Caffeine (1,3- <sup>15</sup> N <sub>2</sub> , 99%)	neat	Please inquire
CNLM-333*	Caffeine (2- <sup>13</sup> C, 99%; 1,3- <sup>15</sup> N <sub>2</sub> , 98%)	neat	0.1 g
C-051	Caffeine (unlabeled)	1000 µg/mL in methanol	1 mL
ULM-7653-1.2*	Caffeine (unlabeled)	100 µg/mL in methanol	1.2 mL
DLM-1819-1.2*	DL-Cotinine (methyl-D <sub>3</sub> , 98%)	100 µg/mL in acetonitrile	1.2 mL
DLM-1819*	DL-Cotinine (methyl-D <sub>3</sub> , 98%)	neat	0.01 g, 0.1 g, 0.5 g
E-026	(+)-Ephedrine·HCl (D <sub>3</sub> , 98%)	1000 µg/mL in methanol (as free base)	1 mL
E-025	(+)-Ephedrine·HCl (D <sub>3</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
E-011	(+)-Ephedrine·HCl (unlabeled)	1000 µg/mL in methanol (as free base)	1 mL
E-023	(-)-Ephedrine·HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
E-130	N-Ethylpentylone·HCl (D <sub>5</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
E-129	N-Ethylpentylone·HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
H-101	trans-3'-Hydroxycotinine (unlabeled)	1 mg/mL in methanol	1 mL
M-027	(±)-MDA (D <sub>5</sub> , 98%)	1000 µg/mL in methanol	1 mL
M-068	(±)-MDEA (D <sub>5</sub> , 98%)	1000 µg/mL in methanol	1 mL
M-082	(±)-MDEA (D <sub>6</sub> , 98%)	1000 µg/mL in methanol	1 mL
M-081	(±)-MDEA (D <sub>6</sub> , 98%)	100 µg/mL in methanol	1 mL
M-029	(±)-MDMA (D <sub>5</sub> , 98%)	1000 µg/mL in methanol	1 mL
M-020	(+)-Methamphetamine (unlabeled)	1 mg/mL in methanol	1 mL
M-034	(±)-Methamphetamine (D <sub>8</sub> , 98%)	1 mg/mL in methanol	1 mL
M-016	(±)-Methamphetamine (D <sub>8</sub> , 98%)	100 µg/mL in methanol	1 mL
M-091	(±)-Methamphetamine (D <sub>9</sub> , 98%)	1 mg/mL in methanol	1 mL
M-093	(±)-Methamphetamine (D <sub>14</sub> , 98%)	1 mg/mL in methanol	1 mL
M-092	(±)-Methamphetamine (D <sub>14</sub> , 98%)	100 µg/mL in methanol	1 mL
M-150	3,4-Methylenedioxypropylvalerone·HCl (MDPV) (D <sub>8</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
M-146	3,4-Methylenedioxypropylvalerone·HCl (MDPV) (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
M-127	Methylphenidate·HCl (D <sub>9</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
M-083	Methylphenidate·HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
M-084	Modafinil (unlabeled)	1 mg/mL in acetonitrile	1 mL
N-067	Naphyrone·HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
N-048	(±)-Nicotine (D <sub>4</sub> , 98%)	100 µg/mL in acetonitrile	1 mL

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**Drugs and Their Metabolites** *(continued)*

Catalog No.	Description	Concentration	Unit Size
CLM-3914-1.2*	DL-Nicotine (3',4',5'- <sup>13</sup> C <sub>3</sub> , 99%)	100 µg/mL in acetonitrile	1.2 mL
CLM-3914*	DL-Nicotine (3',4',5'- <sup>13</sup> C <sub>3</sub> , 99%)	neat	0.1 g
DLM-1818*	DL-Nicotine (methyl-D <sub>3</sub> , 98%)	neat	0.1 g, 0.5 g
N-008	S(-)-Nicotine (unlabeled)	1 mg/mL in methanol	1 mL
DLM-9017*	DL-Nornicotine (pyridine-D <sub>4</sub> , 98%)	neat	Please inquire
N-032	Noroxycodone·HCl (D <sub>3</sub> , 98%)	100 µg/mL in acetonitrile (as free base)	1 mL
N-011	Noroxycodone·HCl (unlabeled)	1000 µg/mL in methanol	1 mL
IMPC-051-03	Paraxanthine (unlabeled)	1 mg/mL in methanol	1 mL
P-023	Phentermine (unlabeled)	1 mg/mL in methanol	1 mL
P-034	Phentermine·HCl (D <sub>5</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
C-112	1-(3-Chlorophenyl)piperazine (MCPD)·HCl (D <sub>8</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
C-089	1-(3-Chlorophenyl)piperazine (MCPD)·HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
P-081	Pyrovalerone·HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
P-090	α-Pyrrolidinovalerophenone·HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
R-011	Ritalinic acid·HCl (unlabeled)	1 mg/mL in methanol (as free base)	1 mL
R-014	(±)- <i>threo</i> -Ritalinic acid·HCl (D <sub>10</sub> , 98%)	100 µg/mL in methanol (as free base)	1 mL
T-013	Theobromine (unlabeled)	100 µg/mL in methanol	1 mL

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## Fatty Acids and Lipids

Fatty acids and lipids are important biological compounds that are essential to the regulation and control of cellular functions and metabolic pathways. These biomolecules are also tied to the energetic balance of an organism. Their qualitative/quantitative analysis has emerged to better understand the underlying pathophysiology, as well as to identify new biomarkers or diagnose existing ones.

To aid such research initiatives, CIL is pleased to offer a multitude of stable isotope-labeled and unlabeled fatty acids and lipids. The fatty acids cover saturated and unsaturated classes, while the lipids include ceramides (e.g., *N*-palmitoyl-D-sphingosine, *N*-oleoyl-D-sphingosine), and phospholipids (e.g., dodecylphosphocholine, dipalmitoyl phosphatidylcholine), as well as triacylglycerides (e.g., tripalmitin, tristearin, triolein). These are available in various labeling patterns (i.e., uniform, partial), forms (i.e., free acid, salt, ester), and material grades (i.e., research, MPT).

Catalog No.	Description	Unit Size
DLM-10481	Arachidic acid (2,2-D <sub>2</sub> , 98%)	Please inquire
DLM-1234	Arachidic acid (methyl-D <sub>3</sub> , 98%) CP 97%	0.1 g
DLM-10519	Arachidic acid (12,12,13,13-D <sub>4</sub> , 98%)	0.1 g, 0.25 g
DLM-1233	Arachidic acid (D <sub>39</sub> , 98%)	1 g
DLM-1661-N	Arachidonic acid (5,6,8,9,11,12,14,15-D <sub>8</sub> , 98%)	5 mg
ULM-10272	Arachidonic acid (unlabeled)	Please inquire
CLM-9666	Butyric acid (1- <sup>13</sup> C, 99%)	1 g
CLM-9215	Butyric acid ( <sup>13</sup> C <sub>4</sub> , 99%)	0.1 g
DLM-1110	Butyric acid (3,3,4,4,4-D <sub>5</sub> , 97-98%)	Please inquire
DLM-1508	Butyric acid (D <sub>7</sub> , 98%)	5 g
CLM-9768	Butyryl coenzyme A, lithium salt (butyryl- <sup>13</sup> C <sub>4</sub> , 99%) (in solution) CP 95%	Please inquire
DLM-10279	Coenzyme Q10 (dimethoxy-D <sub>6</sub> , methyl-D <sub>3</sub> , 98%) CP 97%	1 mg, 5 mg
DLM-2006	Decanoic acid (methyl-D <sub>3</sub> , 98%)	0.5 g, 1 g
DLM-270	Decanoic acid (D <sub>19</sub> , 98%)	1 g
DLM-1002	<i>N</i> -Decanol (D <sub>21</sub> , 98%)	1 g
ULM-9721	<i>N</i> -Decanoyl-D-sphingosine (ceramide d18:1/10:0) (unlabeled) CP 97%	Please inquire
DLM-677-1.2	Dibenz[ <i>A,H</i> ]anthracene (D <sub>14</sub> , 98%) (200 µg/mL in toluene-D <sub>8</sub> )	1.2 mL
DLM-677	Dibenz[ <i>A,H</i> ]anthracene (D <sub>14</sub> , 98%)	0.01 g, 0.1 g, 0.5 g
DLM-11092	1,2-Diheptanoyl- <i>SN</i> -glycero-3-phosphocholine (heptanoyl-D <sub>26</sub> , 97%; 50-60% on alpha carbons)	100 mg
DLM-11085	1,2-Dihexanoyl- <i>SN</i> -glycero-3-phosphocholine (hexanoyl-D <sub>22</sub> , 97%; 50-60% on alpha carbons)	100 mg
DLM-11093	1,2-Dimyrystoyl- <i>SN</i> -glycero-3-phosphocholine (dimyrystoyl-D <sub>54</sub> , 97%; 50-60% on alpha carbons)	100 mg
DLM-11097	1,2-Dimyrystoyl- <i>SN</i> -glycero-3-phosphoglycerol, ammonium salt (dimyrystoyl-D <sub>54</sub> , 97%; 50-60% on alpha carbons)	100 mg
DLM-11094	1,2-Dipalmitoyl- <i>SN</i> -glycero-3-phosphocholine (dipalmitoyl-D <sub>62</sub> , 97%; 50-60% on alpha carbons)	100 mg
DLM-11098	1,2-Dipalmitoyl- <i>SN</i> -glycero-3-phosphoethanolamine (dipalmitoyl-D <sub>62</sub> , 97%; 50-60% at alpha carbon)	100 mg
DLM-11099	1,2-Dipalmitoyl- <i>SN</i> -glycero-3-phosphoserine, ammonium salt (dipalmitoyl-D <sub>62</sub> , 97%; 50-60% on alpha carbons)	50 mg
DLM-11093	1,2-Dimyrystoyl- <i>SN</i> -glycero-3-phosphocholine (DMPC) (dimyrystoyl-D <sub>54</sub> , 97%; 50-60% on alpha carbons)	0.1 g
DLM-11095	1,2-Dioleoyl- <i>SN</i> -glycero-3-phosphocholine (dioleoyl-D <sub>64</sub> , 97%; 50-60% on alpha, vinyl carbons)	50 mg
CLM-8388	Docosahexaenoic acid (DHA) (U- <sup>13</sup> C <sub>22</sub> , 99%) (may contain 5% docosapentaenoic acid or "DPA")	1 mg, 5 mg
DLM-10012	Docosahexaenoic acid (DHA) (21,21,22,22,22-D <sub>5</sub> , 98%)	1 mg, 5 mg
ULM-10013	Docosahexaenoic acid (DHA) (unlabeled)	1 mg, 5 mg
DLM-10015	Docosahexaenoic acid, ethyl ester (DHA ethyl ester) (21,21,22,22,22-D <sub>5</sub> , 98%) CP 95%	Please inquire
ULM-10016	Docosahexaenoic acid, ethyl ester (DHA ethyl ester) (unlabeled) CP 95%	Please inquire
CLM-8398	Docosahexaenoic acid, methyl ester (DHA methyl ester) (DHA U- <sup>13</sup> C <sub>22</sub> , 99%) (may contain 5% docosapentaenoic acid or "DPA")	1 mg, 5 mg
DLM-10014	Docosahexaenoic acid, methyl ester (DHA methyl ester) (21,21,22,22,22-D <sub>5</sub> , 98%) CP 97%	1 mg
CLM-9909	Docosanoic acid (1,2,3,4,5,6- <sup>13</sup> C <sub>6</sub> , 99%) CP 95%	Please inquire
DLM-9180	Docosanoic acid (22,22,22-D <sub>3</sub> , 98%)	Please inquire
DLM-9951	Docosanoic acid (3,3,5,5-D <sub>4</sub> , 98%) CP 95%	Please inquire
DLM-10503	Docosanoic acid (12,12,13,13-D <sub>4</sub> , 98%)	0.1 g, 0.25 g
DLM-4703	Docosanoic acid (D <sub>43</sub> , 98%)	Please inquire
DLM-738	<i>N</i> -Dodecanol (D <sub>25</sub> , 98%)	0.5 g, 1 g
DLM-2274	Dodecylphosphocholine (D <sub>38</sub> , 98%)	0.1 mg, 0.5 g

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## Fatty Acids and Lipids (continued)

Catalog No.	Description	Unit Size
CLM-8389	Eicosapentaenoic acid (U- <sup>13</sup> C <sub>20</sub> , 98%)	Please inquire
DLM-9720	<i>cis</i> -5,8,11,14,17-Eicosapentaenoic acid (19,19,20,20,20-D <sub>5</sub> , 98%)	1 mg, 5 mg
ULM-10024	<i>cis</i> -5,8,11,14,17-Eicosapentaenoic acid (unlabeled)	1 mg, 5 mg
DLM-10558	Eicosapentaenoic acid, ethyl ester (19,19,20,20,20-D <sub>5</sub> , 98%) CP 95%	Please inquire
DLM-10559	<i>cis</i> -5,8,11,14,17-Eicosapentaenoic acid, methyl ester (19,19,20,20,20-D <sub>5</sub> , 98%) CP 95%	1 mg
CLM-8399	Eicosapentaenoic acid, methyl ester (eicosapentaenoate-U- <sup>13</sup> C <sub>20</sub> , 90%)	Please inquire
DLM-10667	Ethyl hexacosanoate (hexacosanoyl-12,12,13,13-D <sub>4</sub> , 98%)	Please inquire
CLM-8274	Ethyl hexanoate (hexanoate- <sup>13</sup> C <sub>6</sub> , 99%)	Please inquire
DLM-6013	Ethylmalonic acid (methyl-D <sub>3</sub> , 98%)	0.1 g
DLM-1308	Heptadecanoic acid (methyl-D <sub>3</sub> , 98%)	0.1 g
DLM-6905	Heptadecanoic acid (D <sub>33</sub> , 98%)	0.25 g, 0.5 g
DLM-1820	Heptanoic acid (2,2,3,3-D <sub>4</sub> , 98%)	Please inquire
DLM-2731	Heptanoic acid (D <sub>13</sub> , 98%)	0.5 g
CLM-9790	Hexacosanoic acid (1,2,3,4,5,6- <sup>13</sup> C <sub>6</sub> , 99%)	Please inquire
DLM-9953	Hexacosanoic acid (3,3,5,5-D <sub>4</sub> , 98%) CP 95%	Please inquire
DLM-8510	Hexacosanoic acid (12,12,13,13-D <sub>4</sub> , 98%)	0.1 g
CLM-3519	Hexanoic acid (1- <sup>13</sup> C, 99%)	0.5 g
DLM-3030	Hexanoic acid (2,2-D <sub>2</sub> , 98%)	Please inquire
DLM-612	Hexanoic acid (methyl-D <sub>3</sub> , 98%)	0.1 g, 0.5 g, 1 g
DLM-11023	Hexanoic acid (4,4,5,5,6,6,6-D <sub>7</sub> , 98%)	Please inquire
DLM-277	Hexanoic acid (D <sub>11</sub> , 98%)	0.1 g, 1 g
DLM-2922	DL-3-Hydroxymyristic acid (2,2,3,4,4-D <sub>5</sub> , 96%)	Please inquire
CLM-2095	Isovaleric acid (1- <sup>13</sup> C, 99%)	1 g
CLM-10348	Isovaleric acid (2,3,4- <sup>13</sup> C <sub>3</sub> , 3-methyl- <sup>13</sup> C, 99%)	Please inquire
DLM-2938	Isovaleric acid (D <sub>9</sub> , 98%)	Please inquire
CLM-1586	Lauric acid (1- <sup>13</sup> C, 99%)	1 g, 5 g
DLM-3062	Lauric acid (methyl-D <sub>3</sub> , 99%)	0.5 g, 1 g
DLM-563	Lauric acid (D <sub>23</sub> , 98%)	1 g
CLM-9688	Linoleic acid (18:2) (1- <sup>13</sup> C, 99%)	1 g
CLM-6855	Linoleic acid (18:2) (U- <sup>13</sup> C <sub>18</sub> , 98%) (<10% <i>cis/trans</i> isomer) CP 94%	0.1 mg, 0.1 g, 0.25 g, 1 g
CLM-2119	Linoleic acid (18:2), ethyl ester (1- <sup>13</sup> C, 99%)	Please inquire
CLM-3960	Linoleic acid (18:2), ethyl ester (U-linoleate- <sup>13</sup> C <sub>18</sub> , 98%) CP 95%	0.5 g
DLM-227	Linoleic acid (18:2), ethyl ester (17,17,18,18,18-D <sub>5</sub> , 98%)	Please inquire
DLM-766	Linoleic acid (18:2), ethyl ester (D <sub>31</sub> , 98%) CP 95%	Please inquire
CLM-8395	Linoleic acid (18:2), methyl ester (U-linoleate- <sup>13</sup> C <sub>18</sub> , 98%) CP 95%	0.1 g, 0.25 g, 1 g
DLM-9663	Linoleic acid (18:2), methyl ester (D <sub>31</sub> , 98%) CP 95%	Please inquire
CLM-6229	Linoleic acid (18:2), potassium salt (1- <sup>13</sup> C, 99%)	1 g
CLM-8835	Linoleic acid (18:2), potassium salt (U- <sup>13</sup> C <sub>18</sub> , 98%) (may have up to 5% isomers) CP 97%	Please inquire
CLM-10487	Linoleic acid (18:2), sodium salt (U- <sup>13</sup> C <sub>18</sub> , 98%) (may have up to 5% isomers) CP 94%	Please inquire
CLM-8386	Linolenic acid (18:3) (U- <sup>13</sup> C <sub>18</sub> , 98%) CP 95%	0.1 g
DLM-9348	Linolenic acid (18:3) (17,17,18,18,18-D <sub>5</sub> , 98%) CP 90%	0.25 g
DLM-2351	Linolenic acid (18:3), ethyl ester (17,17,18,18,18-D <sub>5</sub> , 98%) CP 95%	0.25 g
CLM-8396	Linolenic acid (18:3), methyl ester (linolenate-U- <sup>13</sup> C <sub>18</sub> , 98%) CP 95%	0.1 g
DLM-10520	Lysophosphatidylcholine 20:0 (eicosanoyl-12,12,13,13-D <sub>4</sub> , 98%)	1 mg, 5 mg
ULM-10521	Lysophosphatidylcholine 20:0 (unlabeled)	5 mg, 10 mg
CLM-10499	Lysophosphatidylcholine 22:0 (docosanoyl-1,2,3,4,5,6- <sup>13</sup> C <sub>6</sub> , 99%)	1 mg, 5 mg
DLM-10500	Lysophosphatidylcholine 22:0 (docosanoyl-12,12,13,13-D <sub>4</sub> , 98%)	1 mg, 5 mg
ULM-10498	Lysophosphatidylcholine 22:0 (unlabeled)	5 mg, 10 mg
CLM-10496	Lysophosphatidylcholine 24:0 (tetracosanoyl-1,2,3,4,5,6- <sup>13</sup> C <sub>6</sub> , 99%)	1 mg, 5 mg
DLM-10497	Lysophosphatidylcholine 24:0 (tetracosanoyl-12,12,13,13-D <sub>4</sub> , 98%)	1 mg, 5 mg
ULM-10495	Lysophosphatidylcholine 24:0 (unlabeled)	5 mg, 10 mg

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Catalog No.	Description	Unit Size
CLM-9792	Lysophosphatidylcholine 26:0 (hexacosanoyl-1,2,3,4,5,6- <sup>13</sup> C <sub>6</sub> , 99%)	1mg, 5mg
DLM-10501	Lysophosphatidylcholine 26:0 (hexacosanoyl-12,12,13,13-D <sub>4</sub> , 98%)	1 mg, 5 mg
ULM-9791	Lysophosphatidylcholine 26:0 (unlabeled)	5 mg, 10 mg
DLM-2960	2-Methylsuccinic acid (D <sub>6</sub> , 98%)	1 g
CLM-1844	Myristic acid (1- <sup>13</sup> C, 99%)	1 g
CLM-3665	Myristic acid (1,2,3- <sup>13</sup> C <sub>3</sub> , 99%)	0.5 g
DLM-1039	Myristic acid (methyl-D <sub>3</sub> , 98%)	0.1 g
DLM-7487	Myristic acid (13,13,14,14,14-D <sub>5</sub> , 98%)	Please inquire
DLM-11024	Myristic acid (12,12,13,13,14,14,14-D <sub>7</sub> , 98%)	Please inquire
DLM-208	Myristic acid (D <sub>27</sub> , 98%)	1 g
CLM-6228	Myristic acid, potassium salt (1- <sup>13</sup> C, 99%)	Please inquire
CLM-8695	Myristic acid, sodium salt (1,2,3- <sup>13</sup> C <sub>3</sub> , 99%)	0.5 g
DLM-11100	1-Myristoyl-2-lyso- <i>SN</i> -glycero-3-phosphoglycerol, ammonium salt (myristoyl-D <sub>27</sub> , 97%; 50-60% at alpha carbon)	100 mg
DLM-10367	Nonadecanoic acid (D <sub>37</sub> , 98%)	Please inquire
CLM-8724	Nonanoic acid (U- <sup>13</sup> C <sub>9</sub> , 98%)	Please inquire
DLM-7490	Nonanoic acid (9,9,9-D <sub>3</sub> , 98%)	Please inquire
DLM-9501	Nonanoic acid (D <sub>17</sub> , 98%)	0.5 g, 1 g
DLM-795	<i>N</i> -Octadecanol (D <sub>37</sub> , 98%)	1 g
CLM-293	Octanoic acid (1- <sup>13</sup> C, 99%)	1 g, 5 g
CLM-3827	Octanoic acid (1,2- <sup>13</sup> C <sub>2</sub> , 99%)	Please inquire
CLM-2721	Octanoic acid (1,2,3,4- <sup>13</sup> C <sub>4</sub> , 99%)	0.25 g
CLM-3981	Octanoic acid ( <sup>13</sup> C <sub>8</sub> , 99%)	Please inquire
DLM-619	Octanoic acid (D <sub>15</sub> , 98%)	1 g
CLM-3707	2-Octanoyl-1,3-distearin (octanoic-1- <sup>13</sup> C, 99%)	1 g, 10 g
CLM-4258	2-Octanoyl-1,3-distearin (octanoyl-1,2- <sup>13</sup> C <sub>2</sub> , 99%)	1 g
ULM-9722	<i>N</i> -Octanoyl-D-sphingosine (ceramide d18:1/8:0) (unlabeled)	Please inquire
DLM-6726	<i>n</i> -Octyl-β-glucoside (D <sub>24</sub> , 98%)	0.1 g
CLM-9583	<i>N</i> -Oleoyl-D-sphingosine (ceramide d18: 1/18:1 (9z) (oleoyl-U- <sup>13</sup> C <sub>18</sub> , 99%) CP 95%	0.1 mg, 1 mg
CLM-2492	Oleic acid (methyl- <sup>13</sup> C, 99%)	0.25 g
CLM-149	Oleic acid (1- <sup>13</sup> C, 99%)	0.5 g, 1 g
CLM-460	Oleic acid (U- <sup>13</sup> C <sub>18</sub> , 98%)	0.1 mg, 0.1 g
DLM-689	Oleic acid (9,10-D <sub>2</sub> , 97%)	0.1 g
DLM-1891	Oleic acid (D <sub>33</sub> , 98%)	Please inquire
CLM-3959	Oleic acid, ethyl ester (oleate-U- <sup>13</sup> C <sub>18</sub> , 98%) CP 95%	1 g
DLM-8747	Oleic acid, ethyl ester (D <sub>33</sub> , 98%) CP 95%	Please inquire
CLM-4337	Oleic acid, methyl ester (oleate- <sup>13</sup> C <sub>18</sub> , 98%)	Please inquire
CLM-4477	Oleic acid, potassium salt (1- <sup>13</sup> C, 99%)	1 g
CLM-8856	Oleic acid, potassium salt (U- <sup>13</sup> C <sub>18</sub> , 98%) CP 95%	Please inquire
DLM-8837	Oleic acid, potassium salt (15,15,16,16,17,17,18,18,18-D <sub>9</sub> , 98%)	Please inquire
CLM-6230	Oleic acid, sodium salt (1- <sup>13</sup> C, 99%)	Please inquire
CLM-8763	Oleic acid, sodium salt (U- <sup>13</sup> C <sub>18</sub> , 98%)	Please inquire
ULM-9581	<i>N</i> -Oleoyl-D-sphingosine (ceramide d18:1/18:1 (9z) (unlabeled) CP 95%	0.1 mg
NLM-10511	Oleylamine ( <sup>15</sup> N, 98%)	Please inquire
CLM-150	Palmitic acid (1- <sup>13</sup> C, 99%)	1 g, 5 g, 10 g
CLM-2120	Palmitic acid (2- <sup>13</sup> C, 99%)	1 g
CLM-214	Palmitic acid (1,2- <sup>13</sup> C <sub>2</sub> , 99%)	0.5 g
CLM-7896	Palmitic acid (1,2,3,4- <sup>13</sup> C <sub>4</sub> , 99%)	0.1 mg, 1 g
CLM-10926	Palmitic acid (1,2,3,4,5,6- <sup>13</sup> C <sub>6</sub> , 99%)	Please inquire
CLM-409	Palmitic acid (U- <sup>13</sup> C <sub>16</sub> , 98%)	0.01 g, 0.1 g, 0.5 g
DLM-8673	Palmitic acid (12-D, 98%)	Please inquire
DLM-1153	Palmitic acid (2,2-D <sub>2</sub> , 98%)	1 g
DLM-2890	Palmitic acid (9,9-D <sub>2</sub> , 98%)	Please inquire

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.

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## Fatty Acids and Lipids (continued)

Catalog No.	Description	Unit Size
DLM-2891	Palmitic acid (13,13-D <sub>2</sub> , 98%)	0.5 g
DLM-611	Palmitic acid (methyl-D <sub>3</sub> , 98%)	0.5 g
DLM-2893	Palmitic acid (7,7,8,8-D <sub>4</sub> , 98%)	0.1 g, 0.5 g
DLM-2894	Palmitic acid (11,11,12,12-D <sub>4</sub> , 98%)	Please inquire
DLM-9424	Palmitic acid (13,13,14,14,15,15,16,16-D <sub>8</sub> , 98%)	Please inquire
DLM-2895	Palmitic acid (9,9,10,10,11,11,12,12,13,13,14,14,15,15,16,16-D <sub>17</sub> , 98%) CP 97%	0.1 g
DLM-215	Palmitic acid (D <sub>31</sub> , 98%)	1 g
CLM-3957	Palmitic acid, ethyl ester (palmitate- <sup>13</sup> C <sub>16</sub> , 98%) CP 95%	1 g
DLM-8793	Palmitic acid, ethyl ester (D <sub>31</sub> , 98%)	Please inquire
CLM-11289	Palmitic acid, methyl ester (1,2,3,4- <sup>13</sup> C <sub>4</sub> , 99%)	Please inquire
CLM-8390	Palmitic acid, methyl ester (palmitate- <sup>13</sup> C <sub>16</sub> , 98%)	0.25 g, 1 g
CLM-2241	Palmitoleic acid (U- <sup>13</sup> C <sub>16</sub> , 98%) CP 97%	5 mg, 10 mg
CLM-3958	Palmitoleic acid, ethyl ester (palmitoleate-U- <sup>13</sup> C <sub>16</sub> , 98%) CP 97%	Please inquire
CLM-8391	Palmitoleic acid, methyl ester (palmitoleate-U- <sup>13</sup> C <sub>16</sub> , 98%) CP 97%	Please inquire
DLM-11101	1-Palmitoyl-2-lyso- <i>SN</i> -glycero-3-phosphoglycerol, ammonium salt (palmitoyl-D <sub>31</sub> , 97%; 50-60% at alpha carbon)	100 mg
DLM-11096	1-Palmitoyl-2-oleoyl- <i>SN</i> -glycero-3-phosphocholine (fatty acids-D <sub>63</sub> , 97%; 50-60% on alpha, vinyl carbons)	50 mg
CLM-9582	<i>N</i> -Palmitoyl-D-sphingosine (ceramide d18:1/16:0) (palmitoyl-U- <sup>13</sup> C <sub>16</sub> , 99%) CP 95%	0.1 mg, 1 mg
ULM-9580	<i>N</i> -Palmitoyl-D-sphingosine (ceramide d18:1/16:0) (unlabeled) CP 95%	0.1 mg
DLM-1307	Pentadecanoic acid (methyl-D <sub>3</sub> , 98%)	0.1 g
DLM-572	Pentanoic acid (D <sub>9</sub> , 98%)	1 g, 5 g
CLM-10700	Pentanoic acid, pentyl ester ( <sup>13</sup> C <sub>10</sub> , 99%) CP 95%	Please inquire
DLM-4341	DL- $\alpha$ -Phosphatidylcholine, dihexanoyl (DHPC) (D <sub>40</sub> , 98%) CP 95%	0.1 g
CLM-9668	DL- $\alpha$ -Phosphatidylcholine, dipalmitoyl (DPPC) (U- <sup>13</sup> C <sub>40</sub> , 98%) CP 95%	0.05 g
DLM-8256	DL- $\alpha$ -Phosphatidylcholine, dipalmitoyl (DPPC) (D <sub>80</sub> , 98%) CP 95%	Please inquire
DLM-7557	L-Phosphatidylglycerol, dipalmitoyl (DPPG) (dipalmitoyl-D <sub>62</sub> , 98%)	Please inquire
DLM-6998	Phytanic acid (3-methyl-D <sub>3</sub> , 98%) CP 95%	Please inquire
CLM-1889	Potassium palmitate (1- <sup>13</sup> C, 99%)	1 g
CLM-6865	Potassium palmitate (1,2,3,4- <sup>13</sup> C <sub>4</sub> , 99%)	Please inquire
CLM-10942	Potassium palmitate (1,2,3,4,5,6- <sup>13</sup> C <sub>6</sub> , 99%)	Please inquire
CLM-3943	Potassium palmitate (U- <sup>13</sup> C <sub>16</sub> , 98%)	0.5 g
DLM-3773	Potassium palmitate (2,2-D <sub>2</sub> , 97%)	1 g
DLM-6199	Potassium palmitate (methyl-D <sub>3</sub> , 98%)	Please inquire
DLM-6033	Potassium palmitate (7,7,8,8-D <sub>4</sub> , 98%)	0.5 g
DLM-8302	Pristanic acid (2-methyl-D <sub>3</sub> , 98%) CP 95%	Please inquire
DLM-10241	Sebacic acid (2,2,9,9-D <sub>4</sub> , 98%)	Please inquire
CLM-1256	Sodium butyrate (1- <sup>13</sup> C, 99%)	1 g, 5 g
CLM-4780	Sodium butyrate (2- <sup>13</sup> C, 99%)	Please inquire
CLM-10426	Sodium butyrate ( <sup>13</sup> C <sub>4</sub> , 99%)	0.1 g
DLM-641	Sodium butyrate (3,3,4,4,4-D <sub>5</sub> , 98%)	Please inquire
DLM-7616	Sodium butyrate (D <sub>7</sub> , 98%)	Please inquire
DLM-197	Sodium dodecyl sulfate (D <sub>25</sub> , 98%)	1 g
CLM-10897	Sodium isobutyrate ( <sup>13</sup> C <sub>4</sub> , 99%)	Please inquire
CLM-1948	Sodium octanoate (1- <sup>13</sup> C, 99%)	1 g, 5 g, 10 × 0.1 g
CLM-3876	Sodium octanoate (1,2,3,4- <sup>13</sup> C <sub>4</sub> , 99%)	0.1 g, 0.25 g
CLM-3980	Sodium octanoate (2,4,6,8- <sup>13</sup> C <sub>4</sub> , 99%)	Please inquire
CLM-9617	Sodium octanoate (U- <sup>13</sup> C <sub>8</sub> , 99%)	Please inquire
CLM-174	Sodium palmitate (1- <sup>13</sup> C, 99%)	1 g
CLM-6059	Sodium palmitate (U- <sup>13</sup> C <sub>16</sub> , 98%)	1 g
ULM-9579	Sphingosine (unlabeled) CP 95%	Please inquire

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Catalog No.	Description	Unit Size
CLM-490	Stearic acid (methyl- $^{13}\text{C}$ , 99%)	1 g
CLM-676	Stearic acid ( $1\text{-}^{13}\text{C}$ , 99%)	1 g, 5 g
CLM-6990	Stearic acid ( $\text{U-}^{13}\text{C}_{18}$ , 98%) CP 97%	0.25 g
DLM-1154	Stearic acid (methyl- $\text{D}_3$ , 98%)	0.1 g, 0.25 g
DLM-2712	Stearic acid (17,17,18,18,18- $\text{D}_5$ , 98%)	0.1 g, 0.5 g
DLM-379	Stearic acid ( $\text{D}_{35}$ , 98%)	1 g
CLM-8731	Stearic acid, ethyl ester (stearate- $\text{U-}^{13}\text{C}_{18}$ , 98%)	Please inquire
CLM-8394	Stearic acid, methyl ester (stearate- $\text{U-}^{13}\text{C}_{18}$ , 98%) CP 95%	0.25 g, 1 g
CLM-6227	Stearic acid, potassium salt ( $1\text{-}^{13}\text{C}$ , 99%)	Please inquire
CLM-10365	Stearic acid, sodium salt ( $\text{U-}^{13}\text{C}_{18}$ , 98%) CP 97%	Please inquire
DLM-6143	Suberic acid (2,2,7,7- $\text{D}_4$ , 98%)	0.5 g, 1 g
CLM-9932	Tetracosanoic acid (1,2,3,4,5,6- $^{13}\text{C}_6$ , 99%) CP 96%	Please inquire
DLM-9952	Tetracosanoic acid (3,3,5,5- $\text{D}_4$ , 98%) CP 95%	Please inquire
DLM-9179	Tetracosanoic acid (9,9,10,10- $\text{D}_4$ , 98%)	Please inquire
DLM-10502	Tetracosanoic acid (12,12,13,13- $\text{D}_4$ , 98%)	0.1 g, 0.25 g
DLM-7302	Tetracosanoic acid ( $\text{D}_{47}$ , 98%)	Please inquire
DLM-1392	Tridecanoic acid ( $\text{D}_{25}$ , 98%)	Please inquire
DLM-11086	Triheptanoin (tris(heptanoyl-7,7,7)- $\text{D}_9$ , 98%)	Please inquire
CLM-162	Trioctanoin (1,1,1- $^{13}\text{C}_3$ , 99%)	0.25 g, 0.5 g, 1 g
CLM-163	Triolein (1,1,1- $^{13}\text{C}_3$ , 99%)	0.1 g, 0.5 g
CLM-8445	Tripalmitin (glyceryl- $^{13}\text{C}_3$ , 99%)	Please inquire
CLM-164	Tripalmitin (1,1,1- $^{13}\text{C}_3$ , 99%)	0.25 g, 0.5 g, 1 g
CLM-350	Tripalmitin (2,2,2- $^{13}\text{C}_3$ , 99%)	0.1 g
CLM-9468	Tripalmitin (1,1,1,2,2,2,3,3,3,4,4,4- $^{13}\text{C}_{12}$ , 99%)	Please inquire
DLM-9986	Tripalmitin (glyceryl- $\text{D}_5$ , 98-99%)	Please inquire
DLM-9462	Tripalmitin (trispalmitoyl- $\text{D}_{93}$ , 98%)	0.5 g
DLM-9044	Tripalmitin ( $\text{D}_{98}$ , 98%)	Please inquire
DLM-7875	Tristearin (tristearoyl- $\text{D}_{105}$ , 98%)	Please inquire
CLM-3399	Valproic acid (1,2,3,3'- $^{13}\text{C}_4$ , 99%)	Please inquire
DLM-7876	Valproic acid (propyl-1,1- $\text{D}_2$ , pentanoic-3,3- $\text{D}_2$ , 98%)	Please inquire
DLM-4291	Valproic acid (4,4,4',4'- $\text{D}_4$ , 98%)	0.1 g
DLM-8875	Valproic acid ( $\text{D}_{15}$ , 98%)	Please inquire

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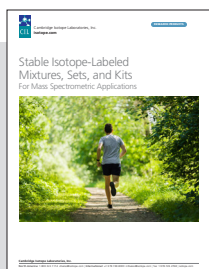
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## Metabolomics Mixtures and Kits

Metabolomics is an increasingly important and growing area of research. The use of stable isotopes (as internal standards), in combination with analytical techniques such as mass spectrometry, allow researchers to identify and quantify metabolites in a given biological sample. This information can be used to better understand disease mechanisms, evaluate drug responses, and assess putative biomarkers, amongst other targeted applications. To help facilitate such initiatives, CIL is pleased to offer a variety of mixes and kits. These are designed to aid ease of use in untargeted and targeted metabolomics exercises (e.g., in quantification, qualification, quality control, system suitability). The mixtures are offered neat or as solutions, while the kits are additionally supplied with a user manual. The manuals outline general procedures and processing tables (i.e., platform parameters and conditions), as well as alternate method suggestions and data analysis guides for user reference. Supplemental figures and references in the user manuals provide additional user support.

Catalog No.	Description	Unit Size
IROA-200-50	IROA® 200 Kit for Bacterial Metabolic Profiling	1 kit
IROA-300-250	IROA® 300 Kit for Mammalian Metabolic Profiling	1 kit
IROA-FLUX-05-300	IROA® 300 Kit for Fluxomic Metabolic Profiling	1 kit
IROA-PHENO-95-300	IROA® 300 Kit for Phenotypic Metabolic Profiling	1 kit
ISO1	Metabolite Yeast Extract (U- <sup>13</sup> C, 98%)	1 vial
ISO1-KIT	Metabolite Yeast Extract Kit	1 kit
L-ISO1	Crude Lipid Yeast Extract (U- <sup>13</sup> C, 99%)	1 vial
MSK-A2-1.2	Metabolomics Amino Acid Mix	1.2 mL
MSK-CAA	Canonical Amino Acid Mix	1 vial
MSK-NCAA	Non-canonical Amino Acid Mix	1 vial
MSK-CNCAA	Canonical/Non-canonical Amino Acid Mix Sets	2 × 1 vial
MSK-BA1	Bile Acid Standard Mix 1 – Unconjugated	1 vial
MSK-BA2	Bile Acid Standard Mix 2 – Conjugated	1 vial
MSK-CRED-DD-KIT	Credentialed <i>E. coli</i> Cell Extract Kit (dried down)	1 kit
MSK-CRED-KIT	Credentialed <i>E. coli</i> Cell Extract Kit (solution)	1 kit
MSK-MET1	Metabolomics Standard Mix 1	1 vial
MSK-OA	Organic Acid Mix	1 vial
MSK-QC1	Metabolomics QC Standard Mix 1	1 vial
MSK-QC2	Metabolomics QC Standard Mix 2	1 vial
MSK-QC-KIT	Metabolomics QC Kit	1 kit
MSK-QReSS1	Metabolomics QReSS™ Standard Mix 1	1 vial
MSK-QReSS2	Metabolomics QReSS™ Standard Mix 2	1 vial
MSK-QReSS-KIT	Metabolomics QReSS™ Kit	1 kit
MSK-QReSS-EXP-KIT	Expanded Metabolomics QReSS™ Kit	1 kit
MSK-TCA1	TCA Cycle Standard Mix 1	1 vial
MSK-TCA2	TCA Cycle Standard Mix 2	1 vial
MSK-TCA	TCA Cycle Standard Mix Sets 1 and 2	2 × 1 vial

Companion unlabeled standard mixes and kits are also available; please inquire.



This catalog details CIL's stable isotope-labeled mixtures, sets, and kits for MS 'omics and MS/MS screening exercises. Here you can find the mix/set compositions, kit contents, usage specifications, sample results, and example references. A series of Q&As are also provided on the back end for general information.

For complete product details, click on the thumbnail to download the catalog or visit the **Metabolomics Mixtures and Kits application page** at [isotope.com](http://isotope.com).

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## MRS/MRI Tracers

Using stable isotopes in magnetic resonance spectroscopy (MRS) and magnetic resonance imaging (MRI) research takes advantage of the changes in chemical shifts to measure rates of conversion between different molecules. Normally in these types of studies, stable isotope compounds will contain D,  $^{13}\text{C}$ ,  $^{15}\text{N}$ , and/or  $^{17}\text{O}$  as tracers. The ability to easily differentiate isotopomers is a huge advantage to using MRS/MRI as opposed to mass spectrometry in this work. There are different techniques that use MRS/MRI in tracer research, including:

- Hyperpolarization – allows for sensitivity increases of up to 100,000 times for short periods of time to image metabolite conversion.
- Deuterium imaging – takes advantage of the very low deuterium background and chemical shifts differences to determine the rates.
- Metabolomics/Metabolism – determines the fates of compounds or the number of turns of specific cycles.

CIL is pleased to offer a vast array of stable isotope-labeled compounds for use as tracers in MRS/MRI research. These materials are available in their neat and/or solution form.

Catalog No.	Description	Unit Size
CLM-317	Acetic acid ( $1\text{-}^{13}\text{C}$ , 99%)	1 g, 5 g
CLM-318	Acetic acid ( $2\text{-}^{13}\text{C}$ , 99%)	1 g
CLM-113	Acetic acid ( $1,2\text{-}^{13}\text{C}_2$ , 99%)	0.5 g, 1 g
CLM-548	Choline chloride ( $1,2\text{-}^{13}\text{C}_2$ , 99%)	0.1 g
CLM-344	Ethanol ( $1\text{-}^{13}\text{C}$ 99%) <6% $\text{H}_2\text{O}$	0.5 g, 1 g
CLM-130	Ethanol ( $2\text{-}^{13}\text{C}$ , 99%) <6% $\text{H}_2\text{O}$	0.5 g, 1 g
CLM-551	Ethanol ( $1,2\text{-}^{13}\text{C}_2$ , 99%) <6% $\text{H}_2\text{O}$	0.5 g, 1 g
CLM-2291	Ethanolamine ( $^{13}\text{C}_2$ , 99%)	Please inquire
CLM-3911	Ethanolamine·HCl ( $1\text{-}^{13}\text{C}$ , 99%)	1 g
CLM-274	Ethanolamine·HCl ( $1,2\text{-}^{13}\text{C}_2$ , 99%)	0.1 g, 0.25 g
CLM-522	Ethyl acetoacetate ( $1,3\text{-}^{13}\text{C}_2$ , 99%)	0.5 g, 1 g
CLM-523	Ethyl acetoacetate ( $2,4\text{-}^{13}\text{C}_2$ , 99%)	0.5 g, 1 g
CLM-4454	Fumaric acid ( $1,4\text{-}^{13}\text{C}_2$ , 99%)	Please inquire
CLM-1529	Fumaric acid ( $^{13}\text{C}_4$ , 99%)	100 mg, 0.1 g
CDLM-6062	Fumaric acid ( $1\text{-}^{13}\text{C}$ , 99%; $2,3\text{-D}_2$ , 98%)	Please inquire
CLM-420	D-Glucose ( $1\text{-}^{13}\text{C}$ , 98-99%)	0.25 g, 0.5 g, 1 g, 5 g, 10 g
CLM-2717	D-Glucose ( $1\text{-}^{13}\text{C}$ , 99%; $6\text{-}^{13}\text{C}$ , 97%)	0.1 g, 0.25 g, 1 g
CLM-6750	D-Glucose ( $3,4\text{-}^{13}\text{C}_2$ , 99%)	Please inquire
CLM-1396	D-Glucose ( $\text{U-}^{13}\text{C}_6$ , 99%)	0.1 mg, 0.25 g, 0.5 g, 1 g, 2 g, 5 g, 10 g, 25 g, 50 g
DLM-349	D-Glucose ( $6,6\text{-D}_2$ , 99%)	1 g, 5 g, 10 g
CLM-4338	DL-Glycerol ( $1\text{-}^{13}\text{C}$ , 99%) aqueous solution	Please inquire
CLM-1397	Glycerol ( $2\text{-}^{13}\text{C}$ , 99%)	0.25 g, 0.5 g, 1 g
CLM-1857	Glycerol ( $1,3\text{-}^{13}\text{C}_2$ , 99%)	0.25 g, 0.5 g, 1 g
DLM-10430	Glycerol ( $2\text{-D}$ , 95-98%) aqueous solution	Please inquire
DLM-1229	Glycerol ( $1,1,2,3,3\text{-D}_5$ , 99%)	1 g, 5 g
CLM-9675	1,2-Glycerol carbonate (carbonyl- $^{13}\text{C}$ , 99%) CP 97%	1 g
CLM-8065	L-Malic acid ( $^{13}\text{C}_4$ , 99%)	0.1 mg, 5 mg, 0.01 g, 0.05 g, 0.1 g
CLM-1189	D-Mannitol ( $1\text{-}^{13}\text{C}$ , 98%)	0.25 g, 0.5 g, 1 g
CLM-646	Propionic acid ( $1\text{-}^{13}\text{C}$ , 99%)	1 g
CLM-647	Propionic acid ( $^{13}\text{C}_3$ , 99%)	1 g
CLM-8077	Pyruvic acid ( $1\text{-}^{13}\text{C}$ , 99%)	1 g, 5 g
CLM-8849	Pyruvic acid ( $2\text{-}^{13}\text{C}$ , 99%) CP 95%	1 g, 5 g
CLM-9505	Pyruvic acid ( $1,2\text{-}^{13}\text{C}_2$ , 99%)	1 g, 5 g
CLM-156	Sodium acetate ( $1\text{-}^{13}\text{C}$ , 99%)	1 g, 5 g, 10 g
CLM-381	Sodium acetate ( $2\text{-}^{13}\text{C}$ , 99%)	1 g, 5 g, 10 g
CLM-440	Sodium acetate ( $1,2\text{-}^{13}\text{C}_2$ , 99%)	1 g, 5 g
CLM-1256	Sodium butyrate ( $1\text{-}^{13}\text{C}$ , 99%)	1 g, 5 g
CLM-10426	Sodium butyrate ( $^{13}\text{C}_4$ , 99%)	0.1 g

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**MRI/MRS Tracers** *(continued)*

Catalog No.	Description	Unit Size
CLM-3706	Sodium D-3-hydroxybutyrate (2,4- <sup>13</sup> C <sub>2</sub> , 99%)	1 g
CLM-3853	Sodium D-3-hydroxybutyrate ( <sup>13</sup> C <sub>4</sub> , 99%) CP 97%	0.5 g
CLM-1577	Sodium L-lactate (1- <sup>13</sup> C, 99%) 20% w/w in H <sub>2</sub> O	1 g
CLM-1578	Sodium L-lactate (3- <sup>13</sup> C, 98%) 20% w/w in H <sub>2</sub> O	0.25 g, 0.5 g, 1 g
CLM-1579	Sodium L-lactate ( <sup>13</sup> C <sub>3</sub> , 98%) 20% w/w in H <sub>2</sub> O	0.1 g, 0.5 g
DLM-9071	Sodium L-lactate (3,3,3-D <sub>3</sub> , 98%) 20% w/w in H <sub>2</sub> O	0.1 g, 0.25 g
CLM-771	Sodium propionate (1- <sup>13</sup> C, 99%)	1 g
CLM-1506	Sodium propionate (2- <sup>13</sup> C, 99%)	0.5 g, 1 g
CLM-4573	Sodium propionate (3- <sup>13</sup> C, 99%)	Please inquire
CLM-3042	Sodium propionate (2,3- <sup>13</sup> C <sub>2</sub> , 99%)	Please inquire
CLM-1865	Sodium propionate ( <sup>13</sup> C <sub>3</sub> , 99%)	0.1 g
CLM-1082	Sodium pyruvate (1- <sup>13</sup> C, 99%)	0.25 g, 0.5 g, 1 g
CLM-1580	Sodium pyruvate (2- <sup>13</sup> C, 99%)	0.5 g, 1 g
CLM-1575	Sodium pyruvate (3- <sup>13</sup> C, 99%)	0.25 g, 0.5 g, 1 g
CLM-1565	D-Sorbitol (1- <sup>13</sup> C, 99%)	Please inquire
CLM-8529	D-Sorbitol ( <sup>13</sup> C <sub>6</sub> , 98%)	0.1 g, 0.25 g
CLM-9371	Succinic acid, disodium salt (2,3- <sup>13</sup> C <sub>2</sub> , 99%)	1 g

For a complete product listing, please visit [isotope.com](https://isotope.com).



## MS/MS Screening Mixtures and Standards

The utility of stable isotope-labeled standards for MS/MS screening is gaining traction worldwide. To support such research endeavors and enhance method adoption, CIL is pleased to offer a breadth of high-quality, stable isotope-labeled mixtures. These mixes contain a collection of stable isotope-labeled standards (e.g., 12 amino acids in NSK-A) and are class-specific (e.g., amino acids, carnitine/acylcarnitines, steroids). These are available in 10-vial sets or single vials and are suitable for metabolite quantification in isotope dilution MS (IDMS) experiments. Also listed here are example individual standards used in MS/MS screening research.

### Mixtures

Catalog No.	Description	Unit Size
NSK-A	Amino Acid Standard Mix Set A	1 vial, 10 vials
NSK-A1	Amino Acid Standard Mix Set A1	1 vial, 10 vials
NSK-AA3	3-Plex Amino Acid Standard Mix	1 vial, 10 vials
NSK-AA3-10X	3-Plex Amino Acid Standard Mix (10X)	1 vial, 10 vials
NSK-B	Carnitine/Acylcarnitine Standard Mix Set B	1 vial, 10 vials
NSK-B-G1	Carnitine/Acylcarnitine Standard Mix Supplement to NSK-B	1 vial, 10 vials
NSK-AB	Standard Mix Sets A and B	2 × 10 vials
NSK-BCAA	Branched-chain Amino Acid Standard Mix	1 vial, 10 vials
NSK-NI-1	Acid Sphingomyelinase Substrate and Internal Standard Mix	1 vial
NSK-KR-1	Galactocerebrosidase Substrate and Internal Standard Mix	1 vial
NSK-FA-1	α-Galactosidase Substrate and Internal Standard Mix	1 vial
NSK-GA-1	Glucocerebrosidase Substrate and Internal Standard Mix	1 vial
NSK-MP-1	α-L-Iduronidase Substrate and Internal Standard Mix	1 vial
NSK-PO-1	Acid α-Glucosidase Substrate and Internal Standard Mix	1 vial
NSK-LPC-1	Lysophosphatidylcholine Mix	1 vial
NSK-S	Steroid Mix Set S	1 vial, 10 vials
NSK-S-40X	Steroid Mix Set S (40X)	1 vial
NSK-S-EXP	Expanded Steroid Mix Set S	1 vial, 10 vials

Companion unlabeled standard mixes are also available; please inquire.

### Individual Standards (Examples)

Catalog No.	Description	Unit Size
CLM-3777	N-Acetylglycine (2- <sup>13</sup> C, 99%)	Please inquire
CLM-3678	Adenosine (ribose- <sup>13</sup> C <sub>5</sub> , 98%) CP 97%	0.05 g, 0.1 g
CLM-8755	β-Alanine (3- <sup>13</sup> C, 99%)	Please inquire
CLM-8756	β-Alanine ( <sup>13</sup> C <sub>3</sub> , 99%)	Please inquire
NLM-1656	β-Alanine ( <sup>15</sup> N, 98%)	0.25 g
CNLM-3440	β-Alanine (3- <sup>13</sup> C, 99%; <sup>15</sup> N, 98%)	Please inquire
CNLM-8457	β-Alanine (1,2- <sup>13</sup> C <sub>2</sub> , 99%; <sup>15</sup> N, 98%)	Please inquire
CNLM-3946	β-Alanine ( <sup>13</sup> C <sub>3</sub> , 98%; <sup>15</sup> N, 96-99%)	0.25 g
CNLM-9007-CA	L-Argininosuccinic acid, barium salt·2H <sub>2</sub> O (arginine- <sup>13</sup> C <sub>6</sub> , 99%; <sup>15</sup> N <sub>4</sub> , 99%) CP 90%	0.1 mg, 0.5 mg
ULM-9008-CA	L-Argininosuccinic acid, barium salt·3H <sub>2</sub> O (unlabeled) CP 90%	0.1 mg
ULM-10431	DL-Carnitine·HCl, O-acetyl (unlabeled)	Please inquire
ULM-10703	DL-Carnitine·HCl, O-butyl (unlabeled)	Please inquire
ULM-10704	DL-Carnitine·HCl, O-isovaleryl (unlabeled)	Please inquire
ULM-10705	DL-Carnitine·HCl, O-myristoyl (unlabeled)	Please inquire
ULM-10432	DL-Carnitine·HCl, O-octanoyl (unlabeled)	Please inquire
ULM-10433	DL-Carnitine·HCl, O-palmitoyl (unlabeled) CP 97%	Please inquire
ULM-10702	DL-Carnitine·HCl, O-propionyl (unlabeled)	Please inquire
DLM-11049	L-Carnitine·ClO <sub>4</sub> , O-malonyl (N-methyl-D <sub>3</sub> , 98%)	Please inquire
DLM-10962	L-Carnitine·HCl (trimethyl-D <sub>9</sub> , 98%)	5 mg
DLM-9067	L-Carnitine·HCl, O-decanoyl (N-methyl-D <sub>3</sub> , 98%)	0.1 mg
DLM-8162	L-Carnitine·HCl, O-dodecanoyl (N-methyl-D <sub>3</sub> , 98%)	0.1 mg
DLM-9276	L-Carnitine·HCl, O-hexanoyl (N-methyl-D <sub>3</sub> , 98%)	0.1 mg
ULM-7198	L-Carnitine·HCl, O-hexanoyl (unlabeled)	Please inquire

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.

For research use only. Not for use in diagnostic procedures.

## MS/MS Screening Standards (continued)

Catalog No.	Description	Unit Size
DLM-6718	L-Carnitine-HCl, O-hexacosanoyl (N-methyl-D <sub>3</sub> , 98%) CP 95%	Please inquire
CLM-7933	Creatine (guanidino- <sup>13</sup> C, 99%)	0.1 g
DLM-1302	Creatine (methyl-D <sub>3</sub> , 98%) CP 97%	0.25 g
DLM-3653	Creatinine (N-methyl-D <sub>3</sub> , 98%)	0.1 g
CLM-4579	2'-Deoxyadenosine-H <sub>2</sub> O (ribose- <sup>13</sup> C <sub>5</sub> , 99%)	Please inquire
CLM-7686	2'-Deoxyguanosine-H <sub>2</sub> O (ribose-1- <sup>13</sup> C, 98%)	Please inquire
DLM-7687	2'-Deoxyguanosine-H <sub>2</sub> O (ribose-5,5-D <sub>2</sub> , 98%)	0.05 g, 0.1 g
NLM-3899-CA	2'-Deoxyguanosine-H <sub>2</sub> O ( <sup>15</sup> N <sub>5</sub> , 98%) CP 95%	5 mg, 10 mg, 25 mg
CNLM-3900-CA	2'-Deoxyguanosine-H <sub>2</sub> O ( <sup>13</sup> C <sub>10</sub> , 98%; <sup>15</sup> N <sub>5</sub> , 96-98%)	5 mg, 10 mg, 25 mg
DLM-6013	Ethylmalonic acid (methyl-D <sub>3</sub> , 98%)	0.1 g
CLM-744	D-Galactose (1- <sup>13</sup> C, 99%)	0.25 g, 0.5 g, 1 g
CLM-4217	D-Galactose (1,2- <sup>13</sup> C <sub>2</sub> , 99%)	Please inquire
CLM-1570	D-Galactose (U- <sup>13</sup> C <sub>6</sub> , 99%)	0.1 g
DLM-9308	D-Galactose (6,6'-D <sub>2</sub> , 97%)	Please inquire
CLM-1822-H	L-Glutamine ( <sup>13</sup> C <sub>5</sub> , 99%)	0.1 mg, 0.01 g, 0.1 g, 0.25 g, 0.5 g, 1 g
DLM-1826	L-Glutamine (2,3,3,4,4-D <sub>5</sub> , 97%)	0.1 g
CNLM-1275	L-Glutamine ( <sup>13</sup> C <sub>5</sub> , 99%; <sup>15</sup> N <sub>2</sub> , 99%)	0.1 g, 0.25 g, 0.5 g
CLM-1017	Glycine (1,2- <sup>13</sup> C <sub>2</sub> , 97-99%)	0.5 g, 1 g, 5g
DLM-280	Glycine (D <sub>5</sub> , 98%)	5 g
NLM-202	Glycine ( <sup>15</sup> N, 98%)	1 g, 5 g
CNLM-8111	N-(3-Methylcrotonyl)glycine (glycine- <sup>13</sup> C <sub>2</sub> , 98%; <sup>15</sup> N, 98%)	Please inquire
DLM-9715	N-(3-Phenylpropionyl)glycine (2,2,-D <sub>2</sub> , 98%)	Please inquire
DLM-9998	Guanidinoacetic acid (2,2-D <sub>2</sub> , 97%)	Please inquire
CLM-7688	Guanosine-H <sub>2</sub> O (ribose-1- <sup>13</sup> C, 98%)	0.05 g, 0.1 g
DLM-7689	Guanosine-H <sub>2</sub> O, (ribose-5,5-D <sub>2</sub> , 98%)	0.05 g, 0.1 g
CNLM-3808-CA	Guanosine-H <sub>2</sub> O ( <sup>13</sup> C <sub>10</sub> , 98%; <sup>15</sup> N <sub>5</sub> , 96-98%)	5 mg, 10 mg, 25 mg
CNLM-8448	N-Hexanoylglycine ( <sup>13</sup> C <sub>2</sub> , 97-99%; <sup>15</sup> N, 97-99%) CP 95%	Please inquire
NLM-4649	L-Histidine (ring-ε- <sup>15</sup> N, 98%) (<5% D)	Please inquire
NLM-4457	L-Histidine (ring-π- <sup>15</sup> N, 98%) (<5% D)	Please inquire
NLM-9585	L-Histidine (ring- <sup>15</sup> N <sub>2</sub> , 98%)	Please inquire
DLM-3619	DL-Homocystine (3,3,3',3',4,4,4',4'-D <sub>8</sub> , 98%)	0.1 g, 0.5 g, 1 g
NLM-4264	Inosine ( <sup>15</sup> N <sub>4</sub> , 95%)	0.01 g, 0.05 g
CLM-8742	L-allo-Isoleucine ( <sup>13</sup> C <sub>6</sub> , 97-99%)	Please inquire
DLM-1505	L-allo-Isoleucine (D <sub>10</sub> , 98%)	0.1 g
CNLM-9291	N-Isovalerylglycine (glycine- <sup>13</sup> C <sub>2</sub> , 99%; <sup>15</sup> N, 99%)	Please inquire
CLM-2247-H	L-Lysine-2HCl ( <sup>13</sup> C <sub>6</sub> , 99%)	0.05 g, 0.1 g, 0.25 g, 0.5 g, 1 g
DLM-2640	L-Lysine-2HCl (4,4,5,5-D <sub>4</sub> , 96-98%)	0.1 g, 0.25 g, 0.5 g, 1 g
NLM-143	L-Lysine-2HCl (α- <sup>15</sup> N, 95-99%)	0.25 g, 1 g
DLM-10520	Lysophosphatidylcholine 20:0 (eicosanoyl-12,12,13,13-D <sub>4</sub> , 98%)	1 mg, 5 mg
ULM-10521	Lysophosphatidylcholine 20:0 (unlabeled)	5 mg, 10 mg
CLM-10499	Lysophosphatidylcholine 22:0 (docosanoyl-1,2,3,4,5,6- <sup>13</sup> C <sub>6</sub> , 99%)	1 mg, 5 mg
DLM-10500	Lysophosphatidylcholine 22:0 (docosanoyl-12,12,13,13-D <sub>4</sub> , 98%)	1 mg, 5 mg
ULM-10498	Lysophosphatidylcholine 22:0 (unlabeled)	5 mg, 10 mg
CLM-10496	Lysophosphatidylcholine 24:0 (tetracosanoyl-1,2,3,4,5,6- <sup>13</sup> C <sub>6</sub> , 99%)	1 mg, 5 mg
DLM-10497	Lysophosphatidylcholine 24:0 (tetracosanoyl-12,12,13,13-D <sub>4</sub> , 98%)	1 mg, 5 mg
ULM-10495	Lysophosphatidylcholine 24:0 (unlabeled)	5 mg, 10 mg
CLM-9792	Lysophosphatidylcholine 26:0 (hexacosanoyl-1,2,3,4,5,6- <sup>13</sup> C <sub>6</sub> , 99%)	1 mg, 5 mg
DLM-10501	Lysophosphatidylcholine 26:0 (hexacosanoyl-12,12,13,13-D <sub>4</sub> , 98%)	1 mg, 5 mg
ULM-9791	Lysophosphatidylcholine 26:0 (unlabeled)	5 mg, 10 mg
CLM-10350	2-Methylbutyric acid (methyl- <sup>13</sup> C, 99%)	Please inquire

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.  
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Catalog No.	Description	Unit Size
DLM-2312	DL-2-Methylcitric acid (methyl-D <sub>3</sub> , 98%) CP 90%	5 mg, 10 mg
CLM-9426	Methylmalonic acid ( <sup>13</sup> C <sub>4</sub> , 99%)	0.1 g
DLM-387	Methylmalonic acid (methyl-D <sub>3</sub> , 98%)	0.25 mg
ULM-10578	Methylmalonic acid, disodium salt (unlabeled) CP 95%	Please inquire
DLM-2960	2-Methylsuccinic acid (D <sub>6</sub> , 98%)	1 g
NLM-1048	Orotic acid·H <sub>2</sub> O (1,3- <sup>15</sup> N <sub>2</sub> , 98%)	0.25 mg
CLM-10604	Phenylpyruvic acid, sodium salt ( <sup>13</sup> C <sub>9</sub> , 99%)	Please inquire
CLM-7944	3-(3-Methyl-1H-pyrazol-5-yl)propanoic acid (MPP) (methyl- <sup>13</sup> C, pyrazolyl- <sup>13</sup> C <sub>3</sub> , 3- <sup>13</sup> C, 99%)	0.1 mg
CNLM-9292	N-Propionylglycine (glycine- <sup>13</sup> C <sub>2</sub> , 99%; <sup>15</sup> N, 99%)	Please inquire
CLM-510	L-Proline (1- <sup>13</sup> C, 99%)	0.25 g
CLM-2260-H	L-Proline ( <sup>13</sup> C <sub>5</sub> , 99%)	0.1 g, 0.25 g, 0.5 g
DLM-487	L-Proline (D <sub>7</sub> , 97-98%)	0.1 g, 0.25 g
NLM-835	L-Proline ( <sup>15</sup> N, 98%)	0.25 g, 0.5 g
CNLM-7822	L-Proline (1- <sup>13</sup> C, 99%; <sup>15</sup> N, 98%)	Please inquire
CNLM-436-H	L-Proline ( <sup>13</sup> C <sub>5</sub> , 99%; <sup>15</sup> N, 99%)	0.1 g, 0.25 g, 0.5 g
DNLM-7562	L-Proline (D <sub>7</sub> , 98%; <sup>15</sup> N, 98%)	0.25 g
CDNLM-6812	L-Proline ( <sup>13</sup> C <sub>5</sub> , 97-99%; D <sub>7</sub> , 97-99%; <sup>15</sup> N, 97-99%)	0.25 g
ULM-8333	L-Proline (unlabeled)	0.05 g, 0.1 g
CLM-646	Propionic acid (1- <sup>13</sup> C, 99%)	1 g
CLM-647	Propionic acid ( <sup>13</sup> C <sub>3</sub> , 99%)	1 g
DLM-2488	Propionic acid (2,2-D <sub>2</sub> , 98%)	1 g, 5 g
DLM-1137	Propionic acid (methyl-D <sub>3</sub> , 98%)	5 g
DLM-1919	Propionic acid (D <sub>5</sub> , 98%)	5 g
DLM-599	Propionic acid (D <sub>6</sub> , 98%)	Please inquire
CLM-1036	L-Ornithine·HCL (1,2- <sup>13</sup> C <sub>2</sub> , 99%)	0.1 g
CLM-4724	L-Ornithine·HCL ( <sup>13</sup> C <sub>5</sub> , 98%)	0.1 g
DLM-2969	L-Ornithine·HCL (3,3,4,4,5,5-D <sub>6</sub> , 98%)	0.1 g, 0.25 g
NLM-3610	L-Ornithine·HCL ( <sup>15</sup> N <sub>2</sub> , 98%)	0.25 g
NLM-1072	Sarcosine ( <sup>15</sup> N, 98%)	Please inquire
CNLM-8183	Suberylglycine (glycine- <sup>13</sup> C <sub>2</sub> , 98%; <sup>15</sup> N, 98%) CP 95%	Please inquire
NSK-T	Succinylacetone Standard Set T	1 vial, 10 vials
NSK-T-US	Succinylacetone Standard Set T (unlabeled)	1 vial
DLM-10502	Tetracosanoic acid (12,12,13,13-D <sub>4</sub> , 98%)	0.1 g, 0.25 g
CLM-2261	L-Threonine ( <sup>13</sup> C <sub>4</sub> , 97-99%)	0.1 g, 0.25 g, 0.5 g
DLM-1693	L-Threonine (D <sub>5</sub> , 98%)	0.1 g
NLM-742	L-Threonine ( <sup>15</sup> N, 98%)	0.25 g, 0.5 g
CNLM-587	L-Threonine ( <sup>13</sup> C <sub>4</sub> , 97-99%; <sup>15</sup> N, 97-99%)	0.1 g, 0.25 g, 0.5 g
CLM-6725	L-Thyroxine (T4) (tyrosine-ring- <sup>13</sup> C <sub>6</sub> , 99%) CP 90%	0.1 mg
CLM-8931	L-Thyroxine (T4) (ring- <sup>13</sup> C <sub>12</sub> , 99%) CP 97%	0.1 mg
ULM-8184	L-Thyroxine (T4) (unlabeled)	0.2 mg
DLM-10758	Trisodium 2-methylcitrate, racemic mixture of diastereomers (methyl-D <sub>3</sub> , 98%) CP 90%	5 mg, 10 mg
ULM-10510	Trisodium 2-methylcitrate, racemic mixture of diastereomers (unlabeled) CP 90%	Please inquire
CLM-716	L-Tryptophan (indole-3- <sup>13</sup> C, 95-99%)	0.25 g
CLM-4290-H	L-Tryptophan ( <sup>13</sup> C <sub>11</sub> , 99%)	0.1 g
DLM-6903	L-Tryptophan (D <sub>8</sub> , 97-98%)	0.25 g
NLM-800	L-Tryptophan ( <sup>15</sup> N <sub>2</sub> , 98%)	0.25 g, 0.5 g

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.  
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## Neurotransmitters and Their Metabolites

Neurotransmitters are small chemicals in the central nervous system that modulate and regulate brain function. Signals are relayed from neuron to neuron by release, upon stimulation, from a synaptic vesicle into a space where it can bind to a receptor. These molecules can be grouped into several classes, such as catecholamines (e.g., dopamine, epinephrine) and indolamines (e.g., melatonin, serotonin). MS analysis of neurotransmitters in human biosamples, such as urine, is a clinically relevant area as they mediate homeostatic function, modulate neural activity, and have been correlated to the pathogenesis of neurodegenerative diseases (e.g., Alzheimer's).

CIL offers an array of stable isotope-labeled neurotransmitters. These research-grade materials are available in their solution and/or neat form.

### Catecholamines

Catalog No.	Description	Unit Size
CLM-3368	Dopamine-HCl (2-(3,4-dihydroxyphenyl) ethylamine-HCl) (1- <sup>13</sup> C, 99%)	0.01 g, 0.05 g
CLM-9926	Dopamine-HCl (2-(3,4-dihydroxyphenyl) ethylamine-HCl) (2- <sup>13</sup> C, 99%)	Please inquire
CLM-3369	Dopamine-HCl (2-(3,4-dihydroxyphenyl) ethylamine-HCl) (ring- <sup>13</sup> C <sub>6</sub> , 99%)	Please inquire
DLM-2833	Dopamine-HCl (2-(3,4-dihydroxyphenyl) ethylamine-HCl) (1,1-D <sub>2</sub> , 93%) CP 96-98%	Please inquire
DLM-2834	Dopamine-HCl (2-(3,4-dihydroxyphenyl) ethylamine-HCl) (2,2-D <sub>2</sub> , 97-98%)	0.01 g, 0.1 g
DLM-2181	Dopamine-HCl (2-(3,4-dihydroxyphenyl) ethylamine-HCl) (ring-D <sub>3</sub> , 98%)	0.1 g
DLM-2498	Dopamine-HCl (2-(3,4-dihydroxyphenyl) ethylamine-HCl) (1,1,2,2-D <sub>4</sub> , 97-98%)	0.01 g, 0.1 g
DLM-2290	Dopamine-HCl (2-(3,4-dihydroxyphenyl) ethylamine-HCl) (ring-D <sub>3</sub> , 95%; 2,2-D <sub>2</sub> , 95%) CP 95%	0.05 g, 0.1 g
CNLM-3445	Dopamine-HCl (2-(3,4-dihydroxyphenyl) ethylamine-HCl) (1- <sup>13</sup> C, 99%; <sup>15</sup> N, 99%)	Please inquire
DLM-9088	DL-Epinephrine (ring-D <sub>3</sub> , 1,2,2-D <sub>3</sub> , 98%)	Please inquire
CNLM-7889	DL-Epinephrine (1,2- <sup>13</sup> C <sub>2</sub> , 99%; <sup>15</sup> N, 98%)	10 mg
DLM-8820	DL-Norepinephrine-HCl (ring-D <sub>3</sub> , 1,2,2-D <sub>3</sub> , 99%)	5 mg, 10 mg

### Indolamines

Catalog No.	Description	Unit Size
DLM-7101	Melatonin (acetyl-D <sub>3</sub> , 98%)	5 mg, 10 mg
DLM-11030	Serotonin-HCl (α,α,β,β-D <sub>4</sub> , 98%) CP 96%	Please inquire

### Other Compounds

Catalog No.	Description	Unit Size
DLM-11029	N-Acetyl-5-hydroxytryptamine (N-acetylserotonin) (acetyl-D <sub>3</sub> , 98%)	Please inquire
CLM-8666	γ-Aminobutyric acid (GABA) ( <sup>13</sup> C <sub>4</sub> , 97-99%)	0.05 g, 0.1 g
DLM-7760	γ-Aminobutyric acid (GABA) (2,2,3,3,4,4-D <sub>6</sub> , 98%)	Please inquire
CLM-548	Choline chloride (1,2- <sup>13</sup> C <sub>2</sub> , 99%)	0.1 g
DLM-549	Choline chloride (trimethyl-D <sub>9</sub> , 98%)	1 g
DLM-2499	3,4-Dihydroxyphenylacetic acid (ring-D <sub>3</sub> , 2,2-D <sub>2</sub> , 98%)	0.01 g, 0.1 g
CLM-3632	DL-Glutamic acid (3- <sup>13</sup> C, 99%)	Please inquire
DLM-335	DL-Glutamic acid (2,4,4-D <sub>3</sub> , 98%)	1 g
DLM-357	DL-Glutamic acid (2,3,3,4,4-D <sub>5</sub> , 97%)	0.25 g
CLM-674	L-Glutamic acid (1- <sup>13</sup> C, 99%)	1 g
CLM-2474	L-Glutamic acid (2- <sup>13</sup> C, 99%)	Please inquire
CLM-4742	L-Glutamic acid (3- <sup>13</sup> C, 99%)	Please inquire
CLM-2431	L-Glutamic acid (4- <sup>13</sup> C, 98-99%)	Please inquire
CLM-613	L-Glutamic acid (5- <sup>13</sup> C, 99%)	0.1 g
CLM-2024	L-Glutamic acid (1,2- <sup>13</sup> C <sub>2</sub> , 99%)	0.25 g
CLM-3646	L-Glutamic acid (3,4- <sup>13</sup> C <sub>2</sub> , 99%)	0.25 g
CLM-1800-H	L-Glutamic acid ( <sup>13</sup> C <sub>5</sub> , 99%)	0.1 mg, 0.25 g, 0.5 g, 1 g
DLM-3725	L-Glutamic acid (2,4,4-D <sub>3</sub> , 97-98%)	0.5 g
DLM-556	L-Glutamic acid (2,3,3,4,4-D <sub>5</sub> , 98%)	0.05 g, 0.1 g
NLM-135	L-Glutamic acid ( <sup>15</sup> N, 98%)	0.5 g, 1 g

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.  
For research use only. Not for use in diagnostic procedures.

Catalog No.	Description	Unit Size
CNLM-7812	L-Glutamic acid ( $1\text{-}^{13}\text{C}$ , 99%; $^{15}\text{N}$ , 98%)	0.25 g
CNLM-554-H	L-Glutamic acid ( $^{13}\text{C}_5$ , 99%; $^{15}\text{N}$ , 99%)	0.25 g, 0.5 g, 1 g
DNLM-6996	L-Glutamic acid (2,3,3,4,4- $\text{D}_5$ , 98%; $^{15}\text{N}$ , 98%)	0.25 g, 0.5 g
CDNLM-6804	L-Glutamic acid ( $^{13}\text{C}_5$ , 97-99%; $\text{D}_5$ , 97-99%; $^{15}\text{N}$ , 97-99%)	0.25 g
ULM-8675	L-Glutamic acid (unlabeled)	0.1 mg
CLM-6664	L-Glutamic acid, <i>N</i> -acetyl (glutamate- $^{13}\text{C}_5$ , 97-99%)	Please inquire
CLM-3721	DL-Glutamic acid· $\text{H}_2\text{O}$ ( $1\text{-}^{13}\text{C}$ , 99%)	1 g
OLM-8028	L-Glutamic acid· $\text{HCl}$ ( $^{17}\text{O}_4$ , ~30%)	Please inquire
CLM-11041	4-(aminobutyl)Guanidine sulfate (butyl- $^{13}\text{C}_4$ , 98%) CP 95%	Please inquire
DLM-2911	Histamine·2 $\text{HCl}$ ( $\alpha,\alpha,\beta,\beta\text{-D}_4$ , 98%)	10 mg
CLM-373	Homovanillic acid ( $1,2\text{-}^{13}\text{C}_2$ , 98-99%)	0.1 g
DLM-2738	Homovanillic acid (phenyl- $\text{D}_3$ , 2,2- $\text{D}_2$ , 96-98%)	0.1 g
COLM-376	Homovanillic acid (ring- $^{13}\text{C}_6$ , 99%; 4-hydroxy- $^{18}\text{O}$ , 90-95%)	0.01 g
CLM-10900	Homovanillic acid, sodium salt ( $1,2\text{-}^{13}\text{C}_2$ , 98-99%)	Please inquire
ULM-10577	Homovanillic acid, sodium salt (unlabeled)	Please inquire
CLM-9936-1.2	5-Hydroxyindole-3-acetic acid ( $3\alpha,4,5,6,7,7\alpha\text{-}^{13}\text{C}_6$ , 98%)	1.2 mL
ULM-11111-1.2	5-Hydroxyindole-3-acetic acid (unlabeled)	1.2 mL
CLM-1896	Indole-3-acetic acid (phenyl- $^{13}\text{C}_6$ , 99%)	0.01 g
DLM-3560	DL-Metanephrine· $\text{HCl}$ ( $\alpha,\beta,\beta\text{-D}_3$ , 98%)	5 mg, 10 mg
DLM-2950	<i>N</i> - $\tau$ -Methylhistamine·2 $\text{HCl}$ ( <i>N</i> -methyl- $\text{D}_3$ , 98%)	0.1 g
DLM-8609	DL-Normetanephrine· $\text{HCl}$ ( $\alpha,\beta,\beta\text{-D}_3$ , 98%)	5 mg, 10 mg
DLM-2993	2-Phenylethylamine (2,2- $\text{D}_2$ , 95%)	Please inquire
CLM-6622	Taurine ( $1,2\text{-}^{13}\text{C}_2$ , 98%)	0.25 g, 0.5 g
DLM-8057	Taurine ( $\text{D}_4$ , 98%) CP 95%	0.1 g, 0.25 g
NLM-4472	Taurine ( $^{15}\text{N}$ , 98%)	Please inquire
CNLM-10253	Taurine ( $^{13}\text{C}_2$ , 99%; $^{15}\text{N}$ , 98%)	0.01 g
DLM-8075	Tyramine· $\text{HCl}$ (1,1,2,2- $\text{D}_4$ , 98%)	Please inquire
DLM-4794	DL-Vanilmandelic acid (VMA) (ring- $\text{D}_3$ , 98%)	0.1 g

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## Nucleic Acids

Nucleic acids are necessary biomolecules of living systems, being fundamentally important to a multitude of cellular processes. Its basic building blocks are nucleobases (e.g., adenine, cytosine, xanthine), nucleosides (e.g., adenosine, guanosine, inosine), and nucleotides (e.g., ATP, CMP, dGTP). The qualification/quantification of these compounds, and their synthetic analogues (e.g., allantoin, 5-fluorouracil, pseudouridine), in biosamples is performed preclinically and clinically to address a number of purposes. This includes the screening of metabolic errors and the efficacy evaluation of drug treatments (be it anticancer, antiviral, or immunosuppressive), among other target areas.

CIL offers an array of stable isotope-labeled nucleic acid building blocks for MS- or NMR-based research. These standards are available in a variety of labeling patterns and quantities.

Catalog No.	Description	Unit Size
CLM-1654	Adenine (8- <sup>13</sup> C, 95%)	0.5 g
NLM-6924	Adenine·HCl·½H <sub>2</sub> O ( <sup>15</sup> N <sub>5</sub> , 98%)	10 mg
CLM-3698	Adenosine (ribose-2- <sup>13</sup> C, 99%)	Please inquire
CLM-3678	Adenosine (ribose- <sup>13</sup> C <sub>5</sub> , 98%) CP 97%	0.05 g, 0.1 g
DLM-7676	Adenosine (ribose-1-D, 98%)	Please inquire
DLM-7677	Adenosine (ribose-2-D, 97%)	Please inquire
DLM-7678	Adenosine (ribose-5,5-D <sub>2</sub> , 98%)	Please inquire
NLM-9750-SL	Adenosine (U- <sup>15</sup> N <sub>5</sub> , 96-98%)	10 mg, 50 mg
CNLM-3806-CA	Adenosine ( <sup>13</sup> C <sub>10</sub> , 98%; <sup>15</sup> N <sub>5</sub> , 96-98%)	10 mg, 50 mg
CLM-3605	Adenosine·H <sub>2</sub> O (ribose-1- <sup>13</sup> C, 99%) CP 95%	0.1 g, 0.25 g
CLM-7674	Adenosine·H <sub>2</sub> O (3'- <sup>13</sup> C, 98%)	0.05 g, 0.1 g
CNLM-3802-SL	Adenosine 5'-monophosphate (AMP) (U- <sup>13</sup> C <sub>10</sub> , 98%; U- <sup>15</sup> N <sub>5</sub> , 96-98%)	10 mg, 50 mg
NLM-3792-SL	Adenosine 5'-monophosphate (AMP), lithium salt (U- <sup>15</sup> N <sub>5</sub> , 96-98%) (in solution)	10 mg, 50 mg
CLM-11402-CA	Adenosine 5'-triphosphate (ATP), ammonium salt (4'- <sup>13</sup> C, 99%) (in solution) CP 95%	Please inquire
CLM-11403-CA	Adenosine 5'-triphosphate (ATP), ammonium salt (5'- <sup>13</sup> C, 99%) (in solution) CP 95%	Please inquire
CLM-11404-CA	Adenosine 5'-triphosphate (ATP), ammonium salt (1',2',3',4',5'- <sup>13</sup> C <sub>5</sub> , 99%) (in solution) CP 95%	Please inquire
CLM-8426-CA	Adenosine 5'-triphosphate (ATP), ammonium salt ( <sup>13</sup> C <sub>10</sub> , 99%) (in solution) CP 95%	100 µmol
DLM-7514-CA	Adenosine 5'-triphosphate (ATP), ammonium salt (D, 97%) (in solution) CP 90%	20 µmol, 50 µmol, 100 µmol
DLM-8815-CA	Adenosine 5'-triphosphate (ATP), ammonium salt (2-D, 97%) (in solution) CP 90%	100 µmol
DLM-11405-CA	Adenosine 5'-triphosphate (ATP), ammonium salt (4'-D, 97%) (in solution) CP 95%	Please inquire
DLM-9268-CA	Adenosine 5'-triphosphate (ATP), ammonium salt (2,8-D <sub>2</sub> , 98%) (in solution) CP 95%	Please inquire
DLM-11406-CA	Adenosine 5'-triphosphate (ATP), ammonium salt (5',5''-D <sub>2</sub> , 97%) (in solution) CP 95%	Please inquire
DLM-8922-CA	Adenosine 5'-triphosphate (ATP), ammonium salt (ribose-3',4',5',5'-D <sub>4</sub> , 98%) (in solution) CP 90%	20 µmol, 50 µmol, 100 µmol
NLM-3987-CA	Adenosine 5'-triphosphate (ATP), ammonium salt ( <sup>15</sup> N <sub>5</sub> , 98-99%) (in solution) CP 90%	20 µmol, 100 µmol
CNLM-4265-CA	Adenosine 5'-triphosphate (ATP), ammonium salt ( <sup>13</sup> C <sub>10</sub> , 98-99%; <sup>15</sup> N <sub>5</sub> , 98-99%) (in solution) CP 90%	20 µmol, 50 µmol, 100 µmol
DNLM-10985-CA	Adenosine 5'-triphosphate (ATP), ammonium salt (ribose-D <sub>6</sub> , 98%; <sup>15</sup> N <sub>5</sub> , 98%) (in solution) CP 95%	Please inquire
NLM-12312	DL-Allantoin ( <sup>15</sup> N <sub>4</sub> , 98%) CP 97%	Please inquire
CLM-3611	Cytidine (ribose-1- <sup>13</sup> C, 99%)	0.25 g
CLM-3699	Cytidine (ribose-2- <sup>13</sup> C, 99%)	Please inquire
CLM-3679	Cytidine (ribose- <sup>13</sup> C <sub>5</sub> , 98%)	0.05 g, 0.1 g
DLM-7681	Cytidine (ribose-5,5-D <sub>2</sub> , 98%)	Please inquire
NLM-3797	Cytidine ( <sup>15</sup> N <sub>3</sub> , 96-98%)	50 mg
CNLM-3807	Cytidine ( <sup>13</sup> C <sub>9</sub> , 98%; <sup>15</sup> N <sub>3</sub> , 96-98%)	50 mg
NLM-3793-SL	Cytidine 5'-monophosphate (CMP), lithium salt (U- <sup>15</sup> N <sub>3</sub> , 96-98%) (in solution) CP 90%	10 mg, 50 mg
CNLM-3803-SL	Cytidine 5'-monophosphate (CMP), lithium salt (U- <sup>13</sup> C <sub>9</sub> , 98%; U- <sup>15</sup> N <sub>3</sub> , 96-98%) (in solution) CP 90%	10 mg, 50 mg
CLM-10987-CA	Cytidine 5'-triphosphate (CTP), ammonium salt ( <sup>13</sup> C <sub>9</sub> , 99%) (in solution) CP 95%	100 µmol
DLM-9267-CA	Cytidine 5'-triphosphate (CTP), ammonium salt (5,6-D <sub>2</sub> , 97%) in solution CP 90%	100 µmol
DLM-8924-CA	Cytidine 5'-triphosphate (CTP), ammonium salt (5-D, ribose-3',4',5',5'-D <sub>4</sub> , 97%) (in solution) CP 90%	20 µmol, 50 µmol, 100 µmol
DLM-8594-CA	Cytidine 5'-triphosphate (CTP), ammonium salt (cytosine-5-D, 6-H; ribose-1,2,3,4,5,5-D <sub>6</sub> , 96-97%) (in solution)	100 µmol
DLM-7515-CA	Cytidine 5'-triphosphate (CTP), ammonium salt (D <sub>8</sub> , 97%) (in solution) CP 90%	20 µmol, 50 µmol, 100 µmol
NLM-4266-CA	Cytidine 5'-triphosphate (CTP), ammonium salt ( <sup>15</sup> N <sub>3</sub> , 96%) (in solution) CP 90%	20 µmol, 100 µmol
CNLM-4267-CA	Cytidine 5'-triphosphate (CTP), ammonium salt ( <sup>13</sup> C <sub>9</sub> , 99%; <sup>15</sup> N <sub>3</sub> , 96-98%) (in solution) CP 90%	20 µmol, 50 µmol, 100 µmol

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Catalog No.	Description	Unit Size
CLM-1001	Cytosine (2- <sup>13</sup> C, 99%)	Please inquire
CNLM-4424	Cytosine (2- <sup>13</sup> C, 99%; 1,3- <sup>15</sup> N <sub>2</sub> , 98%)	0.05 g
DLM-4750	2-Deoxy-D-ribose (5,5-D <sub>2</sub> , 98%)	Please inquire
CLM-3700	2'-Deoxyadenosine-H <sub>2</sub> O (deoxyribose-1- <sup>13</sup> C, 99%)	Please inquire
CLM-3701	2'-Deoxyadenosine-H <sub>2</sub> O (deoxyribose-2- <sup>13</sup> C, 99%)	Please inquire
CLM-7682	2'-Deoxyadenosine-H <sub>2</sub> O (ribose-5- <sup>13</sup> C, 98%)	0.05 g, 0.1 g
CLM-4579	2'-Deoxyadenosine-H <sub>2</sub> O (ribose- <sup>13</sup> C <sub>5</sub> , 99%)	Please inquire
DLM-7683	2'-Deoxyadenosine-H <sub>2</sub> O (ribose-5,5-D <sub>2</sub> , 98%)	0.05 g, 0.1 g
NLM-3895	2'-Deoxyadenosine-H <sub>2</sub> O ( <sup>15</sup> N <sub>5</sub> , 96-98%)	25 mg
CNLM-3896-CA	2'-Deoxyadenosine monohydrate ( <sup>13</sup> C <sub>10</sub> , 98%; <sup>15</sup> N <sub>5</sub> , 96-98%)	5 mg, 10 mg, 25 mg
NLM-3919-SL	2'-Deoxyadenosine 5'-monophosphate (U- <sup>15</sup> N <sub>5</sub> , 98%)	10 mg, 50 mg
CNLM-3918-SL	2'-Deoxyadenosine 5'-monophosphate, lithium salt (U- <sup>13</sup> C <sub>10</sub> , 98%; U- <sup>15</sup> N <sub>5</sub> , 98%) (in solution)	10 mg, 50 mg
NLM-6829	2'-Deoxyadenosine phosphoramidite ( <sup>15</sup> N <sub>5</sub> , 98%) CP 95%	10 mg, 25 mg, 50 mg
CNLM-6828	2'-Deoxyadenosine phosphoramidite ( <sup>13</sup> C <sub>10</sub> , 98%; <sup>15</sup> N <sub>5</sub> , 98%) CP 95%	10 mg, 25 mg, 50 mg
CNLM-6219-CA	2'-Deoxyadenosine 5'-triphosphate, ammonium salt ( <sup>13</sup> C <sub>10</sub> , 98%; <sup>15</sup> N <sub>5</sub> , 96-98%) (in solution) CP 90%	20 μmol, 100 μmol
DLM-7507-SL	2'-Deoxyadenosine 5'-triphosphate, lithium salt (U-D, 97%) (in solution) CP 90%	10 mg, 50 mg
NLM-6215-SL	2'-Deoxyadenosine 5'-triphosphate, lithium salt (U- <sup>15</sup> N <sub>5</sub> , 98%) (in solution) CP 90%	10 mg, 50 mg
NLM-3897	2'-Deoxycytidine ( <sup>15</sup> N <sub>3</sub> , 96-98%)	25 mg
CLM-7684	2'-Deoxycytidine-H <sub>2</sub> O (ribose-1- <sup>13</sup> C, 98%)	Please inquire
CLM-3702	2'-Deoxycytidine-H <sub>2</sub> O (deoxyribose-2- <sup>13</sup> C, 99%)	Please inquire
DLM-7685	2'-Deoxycytidine-H <sub>2</sub> O (ribose-5,5-D <sub>2</sub> , 98%)	Please inquire
NLM-3921	2'-Deoxycytidine 5'-monophosphate ( <sup>15</sup> N <sub>3</sub> , 96%)	10 mg
NLM-6827	2'-Deoxycytidine phosphoramidite ( <sup>15</sup> N <sub>3</sub> , 97-98%) CP 95%	10 mg, 25 mg, 50 mg
CNLM-6830	2'-Deoxycytidine phosphoramidite ( <sup>13</sup> C <sub>9</sub> , 98%; <sup>15</sup> N <sub>3</sub> , 98%) CP 95%	10 mg, 25 mg, 50 mg
DLM-7508-SL	2'-Deoxycytidine 5'-triphosphate, dilithium salt (U-D, 97%) (in solution) CP 90%	10 mg, 50 mg
NLM-6216-SL	2'-Deoxycytidine 5'-triphosphate, lithium salt (U- <sup>15</sup> N <sub>3</sub> , 98%) (in solution) CP 90%	10 mg, 50 mg
CNLM-6220-SL	2'-Deoxycytidine 5'-triphosphate, lithium salt (U- <sup>13</sup> C <sub>9</sub> , 98%; U- <sup>15</sup> N <sub>3</sub> , 98%) (in solution) CP 90%	10 mg, 50 mg
CLM-7686	2'-Deoxyguanosine-H <sub>2</sub> O (ribose-1- <sup>13</sup> C, 98%)	Please inquire
CLM-11401-CA	2'-Deoxyguanosine-H <sub>2</sub> O ( <sup>13</sup> C <sub>10</sub> , 99%) CP 95%	Please inquire
DLM-7687	2'-Deoxyguanosine-H <sub>2</sub> O (ribose-5,5-D <sub>2</sub> , 98%)	0.05 g, 0.1 g
NLM-3899-CA	2'-Deoxyguanosine-H <sub>2</sub> O ( <sup>15</sup> N <sub>5</sub> , 98%) CP 95%	5 mg, 10 mg, 25 mg
CNLM-3900-CA	2'-Deoxyguanosine-H <sub>2</sub> O ( <sup>13</sup> C <sub>10</sub> , 98%; <sup>15</sup> N <sub>5</sub> , 96-98%)	5 mg, 10 mg, 25 mg
NLM-6835-SL	2'-Deoxyguanosine 5'-monophosphate (U- <sup>15</sup> N <sub>5</sub> , 98%) (in solution) CP 90%	10 mg
CNLM-6836-SL	2'-Deoxyguanosine 5'-monophosphate (U- <sup>13</sup> C, 98%; U- <sup>15</sup> N, 98%)	10 mg, 50 mg
NLM-6826	2'-Deoxyguanosine phosphoramidite ( <sup>15</sup> N <sub>5</sub> , 98%) CP 95%	10 mg, 25 mg, 50 mg
CNLM-6825	2'-Deoxyguanosine phosphoramidite ( <sup>13</sup> C <sub>10</sub> , 98%; <sup>15</sup> N <sub>5</sub> , 98%) CP 95%	10 mg, 25 mg, 50 mg
NLM-6217-CA	2'-Deoxyguanosine 5'-triphosphate, ammonium salt ( <sup>15</sup> N <sub>5</sub> , 98-99%) (in solution) CP 90%	100 μmol
CNLM-6221-CA	2'-Deoxyguanosine 5'-triphosphate, ammonium salt ( <sup>13</sup> C <sub>10</sub> , 98%; <sup>15</sup> N <sub>5</sub> , 96-98%) (in solution) CP 90%	100 μmol
DLM-7509-SL	2'-Deoxyguanosine 5'-triphosphate, dilithium salt (U-D, 97%) (in solution) CP 90%	10 mg, 50 mg
CNLM-7871-SL	Set of 4 2'-deoxyribonucleoside 5'-monophosphates (U- <sup>13</sup> C, 98%; U- <sup>15</sup> N, 98%) (in solution) CP 90%	4 × 10 mg
DLM-7511-SL	Set of 4 2'-deoxyribonucleoside 5'-triphosphates, lithium salt (U-D, 98%) (in solution) CP 90%	4 × 10 mg, 4 × 50 mg
NLM-7512-SL	Set of 4 2'-deoxyribonucleoside 5'-triphosphates, lithium salt (U- <sup>15</sup> N, 98%) (in solution) CP 90%	4 × 10 mg, 4 × 50 mg
CNLM-7513-SL	Set of 4 2'-deoxyribonucleoside 5'-triphosphates, lithium salt (U- <sup>13</sup> C, 98%; U- <sup>15</sup> N, 98%) (in solution) CP 90%	4 × 10 mg, 4 × 50 mg
CNLM-8771-CA	2'-Deoxyuridine, ammonium salt ( <sup>13</sup> C <sub>9</sub> , 98-99%; <sup>15</sup> N <sub>2</sub> , 98-99%) (in solution) CP 90%	25 μmol, 50 μmol, 100 μmol
DLM-4391	5,6-Dihydrothymine (5,6,6-D <sub>3</sub> , methyl-D <sub>3</sub> , 95%)	50 mg
CNLM-4510	5,6-Dihydrouracil ( <sup>13</sup> C <sub>4</sub> , 99%; <sup>15</sup> N <sub>2</sub> , 98%)	25 mg
DLM-7862	Equimolar mix: ATP, GTP (ribose-3',4',5',5''-D <sub>4</sub> , 98%), CTP, UTP (5-D, ribose-3',4',5',5''-D <sub>4</sub> , 98%) ammonium salt	100 mg
CNLM-3752	Fapyadenine (formyl- <sup>13</sup> C, 98%; diamino- <sup>15</sup> N <sub>2</sub> , 98%)	25 mg
CNLM-3858	Fapyguanine (formyl- <sup>13</sup> C, 99%; 4-amino-5-amido- <sup>15</sup> N <sub>2</sub> , 98%)	Please inquire

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## Nucleic Acids (continued)

Catalog No.	Description	Unit Size
ULM-11411-CA	2-Fluoro-2'-deoxyadenosine 5'-triphosphate, ammonium salt (unlabeled) (in solution) CP 95%	Please inquire
ULM-11412-CA	5-Fluoro-2'-deoxycytidine 5'-triphosphate, ammonium salt (unlabeled) (in solution) CP 95%	Please inquire
ULM-11413-CA	5-Fluoro-2'-deoxyuridine 5'-triphosphate, ammonium salt (unlabeled) (in solution) CP 95%	Please inquire
NLM-798	5-Fluorouracil (1,3- <sup>15</sup> N <sub>2</sub> , 99%)	Please inquire
CNLM-3916	5-Fluorouracil ( <sup>13</sup> C <sub>4</sub> , 99%; <sup>15</sup> N <sub>2</sub> , 98%)	10 mg
DLM-1846	Guanidine·DCl (D <sub>6</sub> , 98%)	1 g
NLM-6723	Guanidine·HBr ( <sup>15</sup> N <sub>3</sub> , 98%)	Please inquire
CLM-1019	Guanine (8- <sup>13</sup> C, 98%)	0.5 g
NLM-6925	Guanine ( <sup>15</sup> N <sub>5</sub> , 98%)	10 mg
CNLM-3990	Guanine (8- <sup>13</sup> C, 98%; 7,9- <sup>15</sup> N <sub>2</sub> , 98%)	25 mg
CLM-7688	Guanosine·H <sub>2</sub> O (ribose-1- <sup>13</sup> C, 98%)	Please inquire
DLM-7689	Guanosine·H <sub>2</sub> O (ribose-5,5-D <sub>2</sub> , 98%)	Please inquire
CNLM-3808-CA	Guanosine·H <sub>2</sub> O ( <sup>13</sup> C <sub>10</sub> , 98%; <sup>15</sup> N <sub>5</sub> , 96-98%)	5 mg, 10 mg, 25 mg
NLM-3798	Guanosine·2H <sub>2</sub> O ( <sup>15</sup> N <sub>5</sub> , 96-98%)	50 mg
CNLM-3804-SL	Guanosine 5'-monophosphate, lithium salt (U- <sup>13</sup> C <sub>10</sub> , 98%; U- <sup>15</sup> N <sub>5</sub> , 98%) (in solution) CP 90%	10 mg, 50 mg
NLM-3794-SL	Guanosine 5'-monophosphate (U- <sup>15</sup> N <sub>5</sub> , 98%) (lyophilized powder) CP 90%	10 mg, 50 mg
CLM-10988-CA	Guanosine 5'-triphosphate(GTP), ammonium salt ( <sup>13</sup> C <sub>10</sub> , 99%) (in solution) CP 90%	100 µmol
DLM-7516-CA	Guanosine 5'-triphosphate (GTP), ammonium salt (D, 97%) (in solution) CP 90%	20 µmol, 50 µmol, 100 µmol
DLM-11407-CA	Guanosine 5'-triphosphate, ammonium salt (3'-D, 97%) (in solution) CP 95%	Please inquire
DLM-8923-CA	Guanosine 5'-triphosphate (GTP), ammonium salt (ribose-3',4',5',5'-D <sub>4</sub> , 98%) (in solution) CP 90%	20 µmol, 50 µmol, 100 µmol
DNLM-10913-CA	Guanosine 5'-triphosphate, ammonium salt (ribose-1',2',3',4',5',5''-D <sub>6</sub> , 98%; <sup>15</sup> N <sub>5</sub> , 98%) (in solution) CP 90%	Please inquire
NLM-4268-CA	Guanosine 5'-triphosphate (GTP), ammonium salt ( <sup>15</sup> N <sub>5</sub> , 98-99%) (in solution) CP 90%	20 µmol, 100 µmol
CNLM-4269-CA	Guanosine 5'-triphosphate (GTP), ammonium salt ( <sup>13</sup> C <sub>10</sub> , 99%; <sup>15</sup> N <sub>5</sub> , 98%) (in solution) CP 90%	20 µmol, 50 µmol, 100 µmol
DNLM-10913-CA	Guanosine 5'-triphosphate (GTP), ammonium salt (ribose-1',2',3',4',5',5''-D <sub>6</sub> , 98%; <sup>15</sup> N <sub>5</sub> , 98%) (in solution) CP 90%	100 µmol
NLM-6715	8-Hydroxy-2'-deoxyguanosine ( <sup>15</sup> N <sub>5</sub> , 98%) CP 95%	0.1 mg, 1 mg
CNLM-4392	5-Hydroxycytosine (2- <sup>13</sup> C, 99%; 1,3- <sup>15</sup> N <sub>2</sub> , 98%)	25 mg, 50 mg
DLM-10484	5-Hydroxymethyl-2'-deoxycytidine (hydroxymethyl-D <sub>2</sub> , 6-D, 98%)	Please inquire
CLM-8042	Hypoxanthine ( <sup>13</sup> C <sub>5</sub> , 99%)	0.1 mg, 10 mg
DLM-8658	Hypoxanthine (2,8-D <sub>2</sub> , 98%)	0.1 g
DLM-2923	Hypoxanthine (2,8,9-D <sub>3</sub> , OD, 98%)	0.1 g
NLM-8500	Hypoxanthine ( <sup>15</sup> N <sub>4</sub> , 98%)	Please inquire
CNLM-7894	Hypoxanthine ( <sup>13</sup> C <sub>5</sub> , 99%; <sup>15</sup> N <sub>4</sub> , 98%)	10 mg
NLM-4264	Inosine ( <sup>15</sup> N <sub>4</sub> , 95%)	0.01 g, 0.05 g
NLM-8712-CA	Inosine 5'-monophosphate, ammonium salt ( <sup>15</sup> N <sub>4</sub> , 98-99%) (in solution) CP 90%	100 µmol
DLM-7471	3-Methyladenine (methyl-D <sub>3</sub> , 98%)	50 mg
DLM-7472	7-Methylguanine (methyl-D <sub>3</sub> , 98%)	10 mg
DLM-7473	6-O-Methylguanine (methyl-D <sub>3</sub> , 98%)	10 mg
CLM-10671	Nicotinamide adenine dinucleotide (NAD <sup>+</sup> ), ammonium salt (ribose- <sup>13</sup> C <sub>5</sub> , 98%) (in solution) CP 96%	0.5 mg, 1 mg
CLM-9427-CA	1-(5'-Phosphoribosyl)-5-amino-4-imidazole-carboxamide salt (2NH <sub>4</sub> <sup>+</sup> ) (ribose- <sup>13</sup> C <sub>5</sub> , 99%) CP 90%	100 µmol
CLM-11345-CA	Pseudouridine ( <sup>13</sup> C <sub>9</sub> , 99%; <sup>15</sup> N <sub>2</sub> , 98%) (in solution)	Please inquire
CLM-11344-CA	Pseudouridine 5'-monophosphate, ammonium salt ( <sup>13</sup> C <sub>9</sub> , 99%; <sup>15</sup> N <sub>2</sub> , 98%) (in solution)	Please inquire
DLM-7518-SL	Set of 4 ribonucleoside 5'-triphosphates, lithium salt (U-D, 98%) (in solution) CP 90%	10 mg, 50 mg
NLM-7519-SL	Set of 4 ribonucleoside 5'-triphosphates, lithium salt (U- <sup>15</sup> N, 98%) (in solution) CP 90%	10 mg, 50 mg
CNLM-7503-SL	Set of 4 ribonucleoside 5'-triphosphates, lithium salt (U- <sup>13</sup> C, 98%; U- <sup>15</sup> N, 98%) (in solution) CP 90%	10 mg, 50 mg
DLM-7518-CA	Set of 4 ribonucleoside 5'-triphosphates, ammonium salt (U-D, 98%) (in solution) CP 90%	4 × 20 µmol, 4 × 50 µmol, 4 × 100 µmol
NLM-7519-CA	Set of 4 ribonucleoside 5'-triphosphates, ammonium salt (U- <sup>15</sup> N, 98%) (in solution) CP 90%	4 × 100 µmol
CNLM-7503-CA	Set of 4 ribonucleoside 5'-triphosphates, ammonium salt (U- <sup>13</sup> C, U- <sup>15</sup> N; 98-99%) (in solution) CP 90%	4 × 20 µmol, 4 × 50 µmol, 4 × 100 µmol
CLM-11348-CA	1-Ribosyl-5-aminoimidazole-4-carboxamide (acadesine) (ribose- <sup>13</sup> C <sub>5</sub> , 99%)	100 µmol

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.  
For research use only. Not for use in diagnostic procedures.

Catalog No.	Description	Unit Size
CLM-3629	Ribothymidine (ribose-1- <sup>13</sup> C, 99%)	Please inquire
NLM-7565-SL	RNA standard ( <sup>15</sup> N, 98%)	1 mg
DLM-10436	Theobromine (3,7-dimethylxanthine) (7-methyl-D <sub>3</sub> , 98%)	Please inquire
CLM-3647	Thymidine (methyl- <sup>13</sup> C, 98%)	0.25 g, 0.5 g
CLM-4289	Thymidine (deoxyribose-1- <sup>13</sup> C, 99%)	Please inquire
CLM-3703	Thymidine (deoxyribose-2- <sup>13</sup> C, 99%)	Please inquire
CLM-7692	Thymidine (deoxyribose-3- <sup>13</sup> C, 99%)	Please inquire
DLM-7691	Thymidine (ribose-5,5-D <sub>2</sub> , 98%)	Please inquire
DLM-3327	Thymidine (methyl-D <sub>3</sub> , ring-6-D, 97%) CP 95%	Please inquire
NLM-3901	Thymidine ( <sup>15</sup> N <sub>2</sub> , 96-98%)	25 mg
CNLM-3902	Thymidine ( <sup>13</sup> C <sub>10</sub> , 98%; <sup>15</sup> N <sub>2</sub> , 96-98%)	25 mg
NLM-10691	α-Thymidine ( <sup>15</sup> N <sub>2</sub> , 98%)	Please inquire
NLM-3925	Thymidine 5'-monophosphate ( <sup>15</sup> N <sub>2</sub> , 98%)	10 mg
CNLM-3924-SL	Thymidine 5'-monophosphate (U- <sup>13</sup> C <sub>10</sub> , 98%; U- <sup>15</sup> N <sub>2</sub> , 98%)	10 mg, 50 mg
NLM-6823	Thymidine phosphoramidite ( <sup>15</sup> N <sub>2</sub> , 96-98%) CP 95%	10 mg, 25 mg, 50 mg
CNLM-6824	Thymidine phosphoramidite ( <sup>13</sup> C <sub>10</sub> , 98%; <sup>15</sup> N <sub>2</sub> , 98%) CP 95%	10 mg, 25 mg, 50 mg
DLM-7510-SL	Thymidine 5'-triphosphate, lithium salt (U-D, 97%) (in solution) CP 90%	10 mg, 50 mg
NLM-6218-SL	Thymidine 5'-triphosphate, lithium salt (U- <sup>15</sup> N <sub>2</sub> , 98%) (in solution) CP 90%	10 mg, 50 mg
CNLM-6222-SL	Thymidine 5'-triphosphate, lithium salt (U- <sup>13</sup> C <sub>10</sub> , 98%; U- <sup>15</sup> N <sub>2</sub> , 98%) (in solution) CP 90%	10 mg, 50 mg
CLM-3764	Thymine (6- <sup>13</sup> C, 99%)	0.25 g
DLM-1089	Thymine (α,α,α,6-D <sub>4</sub> , 98%)	1 g
NLM-3995	Thymine (1,3- <sup>15</sup> N <sub>2</sub> , 98%)	0.1 g
CNLM-6945	Thymine ( <sup>13</sup> C <sub>5</sub> , 98%; <sup>15</sup> N <sub>2</sub> , 98%)	Please inquire
CLM-10507	Uracil ( <sup>13</sup> C <sub>4</sub> , 99%)	Please inquire
NLM-637	Uracil (1,3- <sup>15</sup> N <sub>2</sub> , 98%)	0.25 g, 0.5 g
NLM-1697	Uric acid (1,3- <sup>15</sup> N <sub>2</sub> , 98%)	0.1 g, 0.5 g
CNLM-10617	Uric acid (2- <sup>13</sup> C, 98%; 1,3,7- <sup>15</sup> N <sub>3</sub> , 98%) CP 95%	1 mg
CLM-3276	Uracil (2- <sup>13</sup> C, 99%)	0.1 g
CLM-692	Uracil (4,5- <sup>13</sup> C <sub>2</sub> , 99%)	0.25 g
DLM-8633	Uracil (5-D, 98%)	0.1 g, 0.25 g
DLM-8502	Uracil (5,6-D <sub>2</sub> , 98%)	0.1 g, 0.25 g
CNLM-3917	Uracil ( <sup>13</sup> C <sub>4</sub> , 99%; <sup>15</sup> N <sub>2</sub> , 98%)	0.1 g
NLM-10910	Uric acid, sodium salt ( <sup>15</sup> N <sub>2</sub> , 98%) CP 95%	Please inquire
CLM-3630	Uridine (ribose-1- <sup>13</sup> C, 99%)	0.05 g, 0.1 g
CLM-3680	Uridine (ribose- <sup>13</sup> C <sub>5</sub> , 98%)	Please inquire
DLM-11408-CA	Uridine (5-D, 97%) (in solution) CP 95%	Please inquire
DLM-7693	Uridine (ribose-5,5-D <sub>2</sub> , 98%)	Please inquire
NLM-812	Uridine ( <sup>15</sup> N <sub>2</sub> , 98%)	25 mg
CDLM-11409-CA	Uridine (1',2',3',4',5'- <sup>13</sup> C <sub>5</sub> , 99%; 5-D, 97%) (in solution) CP 95%	Please inquire
CNLM-3809	Uridine ( <sup>13</sup> C <sub>9</sub> , 98%; <sup>15</sup> N <sub>2</sub> , 96-98%)	Please inquire
CDNLM-11410-CA	Uridine (2,4,5,6- <sup>13</sup> C <sub>4</sub> , 99%; 5-D, 97%; 1,3- <sup>15</sup> N <sub>2</sub> , 98%) (in solution) CP 95%	Please inquire
CLM-10513	Uridine diphosphate-α-D-glucose, disodium salt (glucose- <sup>13</sup> C <sub>6</sub> , 99%) (in solution)	Please inquire
NLM-3795	Uridine 5'-monophosphate ( <sup>15</sup> N <sub>2</sub> , 96-98%)	10 mg
NLM-3795-SL	Uridine 5'-monophosphate, lithium salt (U- <sup>15</sup> N <sub>2</sub> , 96-98%) (in solution)	10 mg
CNLM-3805-SL	Uridine 5'-monophosphate, lithium salt (U- <sup>13</sup> C <sub>9</sub> , 98%; U- <sup>15</sup> N <sub>2</sub> , 96-98%) (in solution) CP 90%	10 mg, 50 mg
CLM-10914-CA	Uridine 5'-triphosphate (UTP), ammonium salt ( <sup>13</sup> C <sub>9</sub> , 99%) (in solution) CP 90%	100 μmol
DLM-9365-CA	Uridine 5'-triphosphate (UTP), ammonium salt (uracil-5-D, 98%) (in solution) CP 90%	100 μmol
DLM-9100-CA	Uridine 5'-triphosphate (UTP), ammonium salt (5,6-D <sub>2</sub> , 98%) (in solution) CP 90%	100 μmol
DLM-8925-CA	Uridine 5'-triphosphate (UTP), ammonium salt (5-D, ribose-3',4',5',5'-D <sub>4</sub> , 98%) (in solution) CP 90%	20 μmol, 50 μmol, 100 μmol
DLM-8637-CA	Uridine 5'-triphosphate (UTP), ammonium salt (uracil-5-D, 6-H; ribose-1,2,3,4,5,5-D <sub>6</sub> , 96-97%) (in solution) CP 90%	100 μmol
DLM-7517-CA	Uridine 5'-triphosphate (UTP), ammonium salt (D <sub>8</sub> , 97%) (in solution) CP 90%	20 μmol, 50 μmol, 100 μmol

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**Nucleic Acids** *(continued)*

Catalog No.	Description	Unit Size
NLM-4270-CA	Uridine 5'-triphosphate (UTP), ammonium salt ( $^{15}\text{N}_2$ , 98-99%) (in solution) CP 90%	20 $\mu\text{mol}$ , 100 $\mu\text{mol}$
CNLM-4271-CA	Uridine 5'-triphosphate (UTP), ammonium salt ( $^{13}\text{C}_9$ , 99%; $^{15}\text{N}_2$ , 98%) (in solution) CP 90%	20 $\mu\text{mol}$ , 50 $\mu\text{mol}$ , 100 $\mu\text{mol}$
DNLM-10986-CA	Uridine 5'-triphosphate (UTP), ammonium salt (ribose- $\text{D}_6$ , 98%; uracil- $^{15}\text{N}_2$ , 98%) (in solution) CP 95%	Please inquire
NLM-1698	Xanthine (1,3- $^{15}\text{N}_2$ , 98%) CP 90%	0.1 g
CLM-10530	Xanthosine ( $^{13}\text{C}_5$ , 98%) CP 95%	Please inquire
CLM-8700-CA	Xanthosine-5'-monophosphate, ammonium salt ( $^{13}\text{C}_{10}$ , 98%) (in solution) CP 90%	100 $\mu\text{mol}$

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.  
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## Organic Acids and Their Conjugate Salts

Organic acids (OAs) play essential roles in energy metabolism pathways (e.g., glycolysis, tricarboxylic acid cycle), with the short-chained OAs emerging as important regulators of host immune response and transcriptional regulation.

To aid quantitative research in preclinical and clinical studies, CIL is pleased to offer a collection of stable isotope-labeled and unlabeled OAs and their conjugate salts. These encompass monocarboxylic (e.g., acetic, lactic), dicarboxylic (e.g., malic, succinic), and tricarboxylic (e.g., *cis*-aconitic, citric) acids.

Catalog No.	Description	Concentration	Unit Size
CLM-317	Acetic acid (1- <sup>13</sup> C, 99%)	neat	1 g, 5 g
CLM-318	Acetic acid (2- <sup>13</sup> C, 99%)	neat	1 g
CLM-113	Acetic acid (1,2- <sup>13</sup> C <sub>2</sub> , 99%)	neat	0.5 g, 1 g
CLM-12323	<i>cis</i> -Aconitic acid, trisodium salt trihydrate ( <sup>13</sup> C <sub>4</sub> , 99%) (1,2,3,6 : 3,4,5,6 AS 96:4) CP 97%	neat	1 g, 5 g, 10 g
CLM-9878	<i>trans</i> -Aconitic acid (2,4,4'- <sup>13</sup> C <sub>3</sub> , 99%) CP 95%	neat	Please inquire
CLM-4723	Adipic acid ( <sup>13</sup> C <sub>6</sub> , 99%)	neat	0.1 g
DLM-2905	Adipic acid (2,2,5,5-D <sub>4</sub> , 98%)	neat	Please inquire
DLM-2632	Adipic acid (3,3,4,4-D <sub>4</sub> , 98%)	neat	0.5 g, 1 g
DLM-2115	Adipic acid (D <sub>10</sub> , 98%)	neat	Please inquire
CLM-10894	Adipic acid, disodium salt ( <sup>13</sup> C <sub>6</sub> , 99%)	neat	0.1 mg
ULM-10893	Adipic acid, disodium salt (unlabeled) CP 95%	neat	0.1 mg
CLM-535	5-Aminolevulinic acid:HCl (4- <sup>13</sup> C, 99%)	neat	0.05 g
CLM-1371	5-Aminolevulinic acid:HCl (5- <sup>13</sup> C, 99%) CP 96%	neat	0.05 g, 0.1 g
CLM-7337	Citric acid (1,5- <sup>13</sup> C <sub>2</sub> , 98%)	neat	Please inquire
CLM-148	Citric acid (2,4- <sup>13</sup> C <sub>2</sub> , 99%)	neat	Please inquire
CLM-9876	Citric acid (1,5,6-carboxyl- <sup>13</sup> C <sub>3</sub> , 99%)	neat	0.1 mg, 0.1 g
CLM-9021	Citric acid ( <sup>13</sup> C <sub>6</sub> , 99%) CP 97%	neat	Please inquire
DLM-3487	Citric acid (2,2,4,4-D <sub>4</sub> , 98%)	neat	0.5 g
CLM-7933	Creatine (guanidino- <sup>13</sup> C, 99%)	neat	0.1 g
DLM-1302	Creatine (methyl-D <sub>3</sub> , 98%) CP 97%	neat	0.25 g
DLM-12302	Creatine-H <sub>2</sub> O ( <i>N</i> -methyl-D <sub>3</sub> ; glycine-2,2-D <sub>2</sub> , 99%)	neat	Please inquire
CLM-495	Diethyl malonate (2- <sup>13</sup> C, 99%)	neat	0.5 g, 1 g
CLM-521	Diethyl malonate (1,3- <sup>13</sup> C <sub>2</sub> , 99%)	neat	0.25 g, 0.5 g, 1 g
CLM-3603	Diethyl malonate (1,2,3- <sup>13</sup> C <sub>3</sub> , 99%)	neat	0.5 g
CLM-681	Ethyl acetoacetate (3- <sup>13</sup> C, 99%)	neat	0.5 g, 1 g
CLM-1284	Formic acid ( <sup>13</sup> C, 99%) <5% H <sub>2</sub> O	neat	0.5 g, 1 g, 5 g
DLM-743	Formic acid (formyl-D, 98%) <5% H <sub>2</sub> O	neat	5 g
DLM-285	Formic acid (OD, 98%) <5% D <sub>2</sub> O	neat	5 g
DLM-286	Formic acid (D <sub>2</sub> , 98%) <5% D <sub>2</sub> O	neat	5 g
CLM-1529	Fumaric acid ( <sup>13</sup> C <sub>4</sub> , 99%)	neat	0.1 mg, 0.1 g
DLM-1539	Fumaric acid (2,3-D <sub>2</sub> , 98%)	neat	5 g
DLM-7654	Fumaric acid (D <sub>4</sub> , 98%)	neat	1 g
CDLM-6062	Fumaric acid (1- <sup>13</sup> C, 99%; 2,3-D <sub>2</sub> , 98%)	neat	Please inquire
CDLM-8473	Fumaric acid (1,4- <sup>13</sup> C <sub>2</sub> , 99%; 2,3-D <sub>2</sub> , 98%)	neat	0.1 g
CLM-10890	Fumaric acid, disodium salt ( <sup>13</sup> C <sub>4</sub> , 99%)	neat	Please inquire
DLM-3106	Glutaric acid (2,2,4,4-D <sub>4</sub> , 98%)	neat	5 g
CLM-10351	DL-2-Hydroxyglutaric acid, disodium salt ( <sup>13</sup> C <sub>5</sub> , 99%)	neat	1 mg, 10 mg
ULM-10479	DL-2-Hydroxyglutaric acid, disodium salt (unlabeled)	neat	0.01 g, 0.1 g
DLM-9104	( <i>RS</i> )-2-Hydroxyglutaric acid, disodium salt (2,3,3-D <sub>3</sub> ; OD, 98%) CP 95%	neat	0.1 g
CLM-12282	Isocitric acid, trisodium salt hydrate (3,4,5,6- <sup>13</sup> C <sub>4</sub> , 98%) mixture of diastereomers	neat	1 mg, 5 mg, 10 mg
CLM-6820	α-Ketobutyric acid, sodium salt (methyl- <sup>13</sup> C, 99%)	neat	0.5 g
CLM-6164	α-Ketobutyric acid, sodium salt ( <sup>13</sup> C <sub>4</sub> , 98%)	neat	0.5 g
CDLM-7318	α-Ketobutyric acid, sodium salt (methyl- <sup>13</sup> C, 99%; 3,3-D <sub>2</sub> , 98%)	neat	0.5 g, 1 g
CDLM-7353	α-Ketobutyric acid, sodium salt (4- <sup>13</sup> C, 99%; 3,3,4,4-D <sub>4</sub> , 98%)	neat	0.25 g

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## Organic Acids and Their Conjugate Salts (continued)

Catalog No.	Description	Concentration	Unit Size
CDLM-4611	$\alpha$ -Ketobutyric acid, sodium salt ( $^{13}\text{C}_4$ , 98%; 3,3- $\text{D}_2$ , 98%)	neat	0.1 g, 0.25 g
CLM-2411	$\alpha$ -Ketoglutaric acid ( $^{13}\text{C}_5$ , 99%) CP 90%	neat	0.01 g, 0.1 g
DLM-9476	$\alpha$ -Ketoglutaric acid ( $\text{D}_6$ , 98%)	neat	0.01 g, 0.1 g
CLM-4442	$\alpha$ -Ketoglutaric acid, disodium salt (1,2,3,4- $^{13}\text{C}_4$ , 99%) CP 97%	neat	0.1 mg, 10 mg, 0.1 g, 0.5 g
ULM-10648	$\alpha$ -Ketoglutaric acid, disodium salt hydrate (unlabeled) CP 90%	neat	0.1 mg
CLM-2093	$\alpha$ -Ketoisocaproic acid, sodium salt ( $^{13}\text{C}$ , 99%)	neat	1 g, 10 g
CLM-4826	$\alpha$ -Ketoisocaproic acid, sodium salt (1,2- $^{13}\text{C}_2$ , 99%)	neat	0.1 g
DLM-4214	$\alpha$ -Ketoisocaproic acid, sodium salt (isopropyl- $\text{D}_7$ , 98%)	neat	0.1 g, 0.25 g
CLM-4785	$\alpha$ -Ketoisocaproic acid, sodium salt ( $^{13}\text{C}_6$ , 99%)	neat	0.1 g
DLM-1944	$\alpha$ -Ketoisocaproic acid, sodium salt (methyl- $\text{D}_3$ , 98%)	neat	0.5 g
CLM-6821	$\alpha$ -Ketoisovaleric acid, sodium salt (dimethyl- $^{13}\text{C}_2$ , 99%)	neat	0.5 g
CLM-4418	$\alpha$ -Ketoisovaleric acid, sodium salt ( $^{13}\text{C}_5$ , 98%)	neat	0.25 g, 1 g
DLM-4646	$\alpha$ -Ketoisovaleric acid, sodium salt ( $\text{D}_7$ , 98%)	neat	Please inquire
CDLM-10647	$\alpha$ -Ketoisovaleric acid, sodium salt (dimethyl- $^{13}\text{C}_2$ , 99%; 3- $\text{D}$ , 98%)	neat	0.1 g, 0.5 g
CDLM-4418	$\alpha$ -Ketoisovaleric acid, sodium salt ( $^{13}\text{C}_5$ , 98%; 3- $\text{D}$ , 98%)	neat	0.25 g
CDLM-7317	$\alpha$ -Ketoisovaleric acid, sodium salt (3-methyl- $^{13}\text{C}$ , 99%; 3,4,4,4- $\text{D}_4$ , 98%)	neat	0.5 g, 1 g
CDLM-7354	$\alpha$ -Ketoisovaleric acid, sodium salt (3-methyl- $^{13}\text{C}$ , 99%; 3-methyl- $\text{D}_2$ , 3,4,4,4- $\text{D}_4$ , 98%)	neat	0.25 g
CDLM-8446	$\alpha$ -Ketoisovaleric acid, sodium salt (dimethyl- $^{13}\text{C}_2$ , 98%; 3-methyl- $\text{D}_2$ , 4,4- $\text{D}_2$ , 98%)	neat	0.25 g
CDLM-8100	$\alpha$ -Ketoisovaleric acid, sodium salt (1,2,3,4- $^{13}\text{C}_4$ , 99%; 3,4',4',4'- $\text{D}_4$ , 97-98%)	neat	0.25 g
DLM-1129	Maleic acid (2,3- $\text{D}_2$ , 98%)	neat	5 g
CLM-10892	Maleic acid, disodium salt monohydrate ( $^{13}\text{C}_4$ , 99%)	neat	Please inquire
CLM-310	Maleic anhydride (1,4- $^{13}\text{C}_2$ , 99%)	neat	0.25 g
CLM-312	Maleic anhydride (2,3- $^{13}\text{C}_2$ , 99%)	neat	0.1 g
CLM-6019	Maleic anhydride ( $^{13}\text{C}_4$ , 99%)	neat	Please inquire
DLM-1853	Maleic anhydride ( $\text{D}_2$ , 98%)	neat	1 g, 5 g
DLM-9045	DL-Malic acid (2,3,3- $\text{D}_3$ , 98%)	neat	0.1 g
CLM-8065	L-Malic acid ( $^{13}\text{C}_4$ , 99%)	neat	0.1 mg, 5 mg, 0.01 g, 0.05 g, 0.1 g
ULM-10964	L-Malic acid (unlabeled)	neat	0.1 mg
CLM-10826	Malic acid, disodium salt monohydrate ( $^{13}\text{C}_4$ , 99%)	neat	Please inquire
CLM-751	Malonic acid (2- $^{13}\text{C}$ , 99%)	neat	0.5 g, 1 g
CLM-1248	Malonic acid (1,3- $^{13}\text{C}_2$ , 99%)	neat	0.25, 0.5 g, 1 g
CLM-6123	Malonic acid ( $^{13}\text{C}_3$ , 99%)	neat	0.25 g
DLM-205	Malonic acid ( $\text{D}_4$ , 98%)	neat	50 g
CLM-10887	Malonic acid, disodium salt ( $^{13}\text{C}_3$ , 99%)	neat	Please inquire
DLM-2312	DL-2-Methylcitric acid (methyl- $\text{D}_3$ , 98%) CP 90%	neat	5 mg, 10 mg
CLM-4285	3-Methylglutaconic acid (2,4- $^{13}\text{C}_2$ , 3-methyl- $^{13}\text{C}$ , 99%) <i>cis/trans</i> mix	neat	5 mg
CLM-10398-D	2-Methylglutaric acid (4,5- $^{13}\text{C}_2$ , 98%) CP 95%	1 mg/mL in methanol	1 mL
CLM-10398	2-Methylglutaric acid (4,5- $^{13}\text{C}_2$ , 98%) CP 95%	neat	Please inquire
CLM-9426	Methylmalonic acid ( $^{13}\text{C}_4$ , 99%)	neat	0.1 g
DLM-387	Methylmalonic acid (methyl- $\text{D}_3$ , 98%)	neat	0.25 g
CLM-10895	Methylmalonic acid, disodium salt ( $^{13}\text{C}_4$ , 99%)	neat	Please inquire
ULM-10578	Methylmalonic acid, disodium salt (unlabeled) CP 95%	neat	Please inquire
NLM-10907	Orotic acid, sodium salt ( $^{15}\text{N}_2$ , 98%)	neat	Please inquire
NLM-1048	Orotic acid· $\text{H}_2\text{O}$ (1,3- $^{15}\text{N}_2$ , 98%)	neat	0.25 g
CNLM-10662	Orotic acid· $\text{H}_2\text{O}$ (2- $^{13}\text{C}$ , 99%; 1,3- $^{15}\text{N}_2$ , 98%)	neat	Please inquire
CLM-4449	Oxalic acid, disodium salt (1,2- $^{13}\text{C}_2$ , 99%)	neat	1 g
CLM-10902	Phthalic acid, disodium salt ( $^{13}\text{C}_4$ , 99%)	neat	Please inquire

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Catalog No.	Description	Concentration	Unit Size
CLM-3551	Potassium phosphoenol pyruvate (2- <sup>13</sup> C, 99%)	neat	Please inquire
CLM-2723	Potassium phosphoenol pyruvate (3- <sup>13</sup> C, 99%)	neat	Please inquire
CLM-3398	Potassium phosphoenol pyruvate (2,3- <sup>13</sup> C <sub>2</sub> , 99%)	neat	0.05 g
CLM-646	Propionic acid (1- <sup>13</sup> C, 99%)	neat	1 g
CLM-647	Propionic acid ( <sup>13</sup> C <sub>3</sub> , 99%)	neat	1 g
DLM-2488	Propionic acid (2,2-D <sub>2</sub> , 98%)	neat	1 g, 5 g
DLM-1137	Propionic acid (methyl-D <sub>3</sub> , 98%)	neat	5 g
DLM-1919	Propionic acid (D <sub>5</sub> , 98%)	neat	5 g
DLM-599	Propionic acid (D <sub>6</sub> , 98%)	neat	Please inquire
CLM-8077	Pyruvic acid (1- <sup>13</sup> C, 99%)	neat	1 g, 5 g
CLM-8849	Pyruvic acid (2- <sup>13</sup> C, 99%)	neat	1 g, 5 g
CLM-9505	Pyruvic acid (1,2- <sup>13</sup> C <sub>2</sub> , 99%)	neat	1 g, 5 g
DLM-10675	Pyruvic acid (D <sub>4</sub> , 98%)	neat	Please inquire
CDLM-10674	Pyruvic acid (1- <sup>13</sup> C, 99%; D <sub>4</sub> , 98%)	neat	Please inquire
CLM-2471	Sodium acetate – <sup>13</sup> C depleted (1,2- <sup>12</sup> C <sub>2</sub> , 99.95%)	neat	1 g
CLM-156	Sodium acetate (1- <sup>13</sup> C, 99%)	neat	1 g, 5 g, 10 g
CLM-381	Sodium acetate (2- <sup>13</sup> C, 99%)	neat	1 g, 5 g, 10 g
CLM-440	Sodium acetate (1,2- <sup>13</sup> C <sub>2</sub> , 99%)	neat	1 g, 5 g
DLM-3126	Sodium acetate (D <sub>3</sub> , 99%)	neat	25 g
OLM-1077	Sodium acetate ( <sup>18</sup> O <sub>2</sub> , 95%)	neat	1 g
CDLM-611	Sodium acetate (1- <sup>13</sup> C, 99%; D <sub>3</sub> , 98%)	neat	1 g
CDLM-3457	Sodium acetate (1,2- <sup>13</sup> C <sub>2</sub> , 99%; D <sub>3</sub> , 98%)	neat	1 g
CDLM-1240	Sodium acetate (2- <sup>13</sup> C, 99%; D <sub>3</sub> , 98%)	neat	1 g
COLM-1230	Sodium acetate (1- <sup>13</sup> C, 99%; <sup>18</sup> O <sub>2</sub> , 96%)	neat	Please inquire
CLM-1256	Sodium butyrate (1- <sup>13</sup> C, 99%)	neat	1 g, 5 g
CLM-10426	Sodium butyrate ( <sup>13</sup> C <sub>4</sub> , 99%)	neat	0.1 g
DLM-641	Sodium butyrate (3,3,4,4,4-D <sub>5</sub> , 98%)	neat	Please inquire
DLM-7616	Sodium butyrate (D <sub>7</sub> , 98%)	neat	Please inquire
CLM-3780	Sodium dichloroacetate ( <sup>13</sup> C <sub>2</sub> , 99%)	neat	Please inquire
CLM-583	Sodium formate ( <sup>13</sup> C, 99%)	neat	1 g, 5 g
OLM-8123	Sodium formate ( <sup>18</sup> O <sub>2</sub> , 95%)	neat	0.5 g
CLM-3706	Sodium D-3-hydroxybutyrate (2,4- <sup>13</sup> C <sub>2</sub> , 99%)	neat	1 g
CLM-3853	Sodium D-3-hydroxybutyrate ( <sup>13</sup> C <sub>4</sub> , 99%) CP 97%	neat	0.5 g
DLM-10415-D	Sodium DL-3-hydroxybutyrate (3,4,4,4-D <sub>4</sub> , 98%) CP 95%	1 mg/mL in water	1 mL
CLM-10768	Sodium D-lactate ( <sup>13</sup> C <sub>3</sub> , 98%)	20% w/w in water	Please inquire
CLM-1577	Sodium L-lactate (1- <sup>13</sup> C, 99%)	20% w/w in water	1 g/compound
CLM-1578	Sodium L-lactate (3- <sup>13</sup> C, 98%)	20% w/w in water	0.25 g/compound, 0.5 g/compound, 1 g/compound
CLM-1579	Sodium L-lactate ( <sup>13</sup> C <sub>3</sub> , 98%)	20% w/w in water	0.1 g/compound
CLM-1579-N	Sodium L-lactate ( <sup>13</sup> C <sub>3</sub> , 98%)	neat	0.1 mg
DLM-9071	Sodium L-lactate (3,3,3-D <sub>3</sub> , 98%)	20% w/w in water	0.1 g/compound, 0.25 g/compound
CLM-771	Sodium propionate (1- <sup>13</sup> C, 99%)	neat	1 g
CLM-1506	Sodium propionate (2- <sup>13</sup> C, 99%)	neat	0.5 g, 1 g
CLM-4573	Sodium propionate (3- <sup>13</sup> C, 99%)	neat	Please inquire
CLM-3042	Sodium propionate (2,3- <sup>13</sup> C <sub>2</sub> , 99%)	neat	Please inquire
CLM-1865	Sodium propionate ( <sup>13</sup> C <sub>3</sub> , 99%)	neat	0.1 g
DLM-1601	Sodium propionate (D <sub>5</sub> , 98%)	neat	1 g
CLM-1082	Sodium pyruvate (1- <sup>13</sup> C, 99%)	neat	0.25 g, 0.5 g, 1 g
CLM-1580	Sodium pyruvate (2- <sup>13</sup> C, 99%)	neat	0.5 g, 1 g
CLM-1575	Sodium pyruvate (3- <sup>13</sup> C, 99%)	neat	0.25 g, 0.5 g, 1 g

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.  
For research use only. Not for use in diagnostic procedures.

**Organic Acids and Their Conjugate Salts** *(continued)*

Catalog No.	Description	Concentration	Unit Size
CLM-3507	Sodium pyruvate (2,3- <sup>13</sup> C <sub>2</sub> , 99%)	neat	0.5 g, 1 g
CLM-2440	Sodium pyruvate ( <sup>13</sup> C <sub>3</sub> , 99%)	neat	0.5 g, 1 g
DLM-6068	Sodium pyruvate (D <sub>3</sub> , 97-98%)	neat	0.5 g, 1 g
CLM-1084	Succinic acid (1,4- <sup>13</sup> C <sub>2</sub> , 99%)	neat	0.25 g, 0.5 g, 1 g
CLM-1199	Succinic acid (2,3- <sup>13</sup> C <sub>2</sub> , 99%)	neat	1 g
CLM-1571	Succinic acid ( <sup>13</sup> C <sub>4</sub> , 99%)	neat	0.1 g, 0.25 g, 0.1 mg
DLM-584	Succinic acid (D <sub>4</sub> , 98%)	neat	5 g, 10 g
DLM-831	Succinic acid (D <sub>6</sub> , 98%)	neat	5 g
CDLM-7754	Succinic acid ( <sup>13</sup> C <sub>4</sub> , 99%; 2,2,3,3-D <sub>4</sub> , 98%)	neat	Please inquire
CLM-9371	Succinic acid, disodium salt (2,3- <sup>13</sup> C <sub>2</sub> , 99%)	neat	1 g
DLM-2307	Succinic acid, disodium salt (D <sub>4</sub> , 80%) CP 95%	neat	10 g, 25 g
CLM-6755	Succinylacetone (3,4,5,6,7- <sup>13</sup> C <sub>5</sub> , 99%)	neat	10 mg
DLM-10758	Trisodium 2-methylcitrate, racemic mixture of diastereomers (methyl-D <sub>3</sub> , 98%) CP 90%	neat	5 mg, 10 mg
NLM-1697	Uric acid (1,3- <sup>15</sup> N <sub>2</sub> , 98%)	neat	0.1 g, 0.5 g

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.  
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## Other Compounds

CIL offers a breadth of other compounds that could find utility in qualitative and quantitative, analytical analyses. These are available in neat or solution form in variable unit sizes. For a comprehensive listing of additional individual compounds, please visit [isotope.com](https://isotope.com).

Catalog No.	Description	Concentration	Unit Size
CLM-173	Acetaldehyde (1,2- <sup>13</sup> C <sub>2</sub> , 99%)	neat	0.5 g, 1 g
DLM-112	Acetaldehyde (D <sub>4</sub> , 99%)	neat	1 g, 5 g
NLM-467	Ammonium chloride ( <sup>15</sup> N, 99%)	neat	1 g, 5 g, 10 g, 25 g, 50 g
NLM-711	Ammonium nitrate (ammonium- <sup>15</sup> N, 98%)	neat	1 g
NLM-711-10	Ammonium nitrate (ammonium- <sup>15</sup> N, 10%)	neat	Please inquire
NLM-712	Ammonium nitrate (nitrate- <sup>15</sup> N, 98%)	neat	1 g
NLM-712-10	Ammonium nitrate (nitrate- <sup>15</sup> N, 10%)	neat	Please inquire
NLM-390	Ammonium nitrate ( <sup>15</sup> N <sub>2</sub> , 98%)	neat	1 g
NLM-390-10	Ammonium nitrate ( <sup>15</sup> N <sub>2</sub> , 10%)	neat	Please inquire
NLM-390-5	Ammonium nitrate ( <sup>15</sup> N <sub>2</sub> , 5%)	neat	Please inquire
NLM-713	Ammonium sulfate ( <sup>15</sup> N <sub>2</sub> , 99%)	neat	1 g, 5 g, 10 g, 25 g, 50 g
NLM-713-10	Ammonium sulfate ( <sup>15</sup> N <sub>2</sub> , 10%)	neat	50 g
NLM-713-5	Ammonium sulfate ( <sup>15</sup> N <sub>2</sub> , 5%)	neat	Please inquire
DLM-1100	Ammonium sulfate (D <sub>8</sub> , 98%)	neat	5 g, 10 g
CLM-8141	Arsenobetaine bromide (carboxymethyl- <sup>13</sup> C <sub>2</sub> , 99%) CP 90%	neat	Please inquire
CNLM-9695	5-Azacytosine (4,6- <sup>13</sup> C <sub>2</sub> , 98%; <sup>15</sup> N <sub>4</sub> , 98%)	neat	Please inquire
CLM-9435	<i>N</i> -(3-Aminopropyl) butane-1,4-diamine·3HCl (spermidine·3HCl) ( <sup>13</sup> C <sub>4</sub> , 99%) CP 95%	neat	5 mg, 10 mg
ULM-10264	<i>N</i> -(3-Aminopropyl) butane-1,4-diamine (unlabeled) CP 95%	neat	1 mg, 5 mg, 10 mg
DLM-9262	<i>N,N'</i> -bis(3-Aminopropyl)-1,4-butanediamine·4HCl (spermidine·3HCl) (1,1,2,2,3,3,4,4-D <sub>8</sub> , 97%) CP 95%	neat	5 mg, 10 mg
ULM-10265	<i>N,N'</i> -bis(3-Aminopropyl)-1,4-butanediamine·4HCl (unlabeled) CP 95%	neat	1 mg, 5 mg, 10 mg
DLM-1109	<i>t</i> -Butanol (anhydrous) (OD, 99%)	neat	25 g, 100 g
DLM-4862	Cacodylic acid (D <sub>7</sub> , 98%)	neat	0.5 g
NLM-499	Calcium nitrate ( <sup>15</sup> N <sub>2</sub> , 98%)	neat	1 g
NLM-499-10	Calcium nitrate ( <sup>15</sup> N <sub>2</sub> , 10%)	neat	Please inquire
CLM-9256	(±)-Catechin (2,3,4- <sup>13</sup> C <sub>3</sub> , 99%)	neat	1 mg
CLM-10554	(±)-Catechin gallate (2,3,4- <sup>13</sup> C <sub>3</sub> , 99%) CP 97%	neat	1 mg
DLM-2816	Clozapine (4-methylpiperazinyl-D <sub>4</sub> , 97%)	neat	5 mg, 10 mg
DLM-9786	<i>p</i> -Cresol sulfate, potassium salt (D <sub>7</sub> , 98%) CP 95%	neat	10 mg
CNLM-4661-10X-1.2	Cyanuric acid ( <sup>13</sup> C <sub>3</sub> , 99%; <sup>15</sup> N <sub>3</sub> , 98%) CP 90%	1000 µg/mL in water	1.2 mL
CNLM-4661-1.2	Cyanuric acid ( <sup>13</sup> C <sub>3</sub> , 99%; <sup>15</sup> N <sub>3</sub> , 98%) CP 90%	100 µg/mL in water	1.2 mL
CLM-9255	1,3-Diaminobenzene ( <sup>13</sup> C <sub>6</sub> , 99%) CP 95%	neat	Please inquire
CLM-10563	1,4-Diaminobenzene ( <sup>13</sup> C <sub>6</sub> , 99%)	neat	Please inquire
DLM-10544	Desethylamodiaquine (ethyl-D <sub>5</sub> , 97%)	neat	2 mg, 5 mg
DLM-2744	Enalaprilat·H <sub>2</sub> O (phenyl-D <sub>5</sub> , 98%)	neat	Please inquire
CLM-9257	(±)-Epicatechin (2,3,4- <sup>13</sup> C <sub>3</sub> , 99%) CP 97%	neat	1 mg
ULM-10550	(±)-Epicatechin (unlabeled) CP 97%	neat	1 mg, 5 mg
CLM-10553	(±)-Epicatechin gallate (2,3,4- <sup>13</sup> C <sub>3</sub> , 99%) CP 97%	neat	1 mg
CLM-10555	(±)-Epigallocatechin (2,3,4- <sup>13</sup> C <sub>3</sub> , 99%) CP 97%	neat	1 mg
CLM-10551	(±)-Epigallocatechin gallate (2,3,4- <sup>13</sup> C <sub>3</sub> , 99%) CP 97%	neat	1 mg
CLM-344	Ethanol (1- <sup>13</sup> C, 99%) <6% H <sub>2</sub> O	neat	0.5 g, 1 g
CLM-130	Ethanol (2- <sup>13</sup> C, 99%) <6% H <sub>2</sub> O	neat	0.5 g, 1 g
CLM-551	Ethanol (1,2- <sup>13</sup> C <sub>2</sub> , 99%) <6% H <sub>2</sub> O	neat	0.5 g, 1 g
DLM-552	Ethanolamine (1,1,2,2-D <sub>4</sub> , 98%)	neat	0.1 g, 1 g
NLM-8722	Ethanolamine ( <sup>15</sup> N, 98%)	Please inquire	Please inquire
CLM-3911	Ethanolamine·HCl (1- <sup>13</sup> C, 99%)	neat	1 g
CLM-274	Ethanolamine·HCl (1,2- <sup>13</sup> C <sub>2</sub> , 99%)	neat	0.1 g, 0.25 g

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.

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## Other Compounds (continued)

Catalog No.	Description	Concentration	Unit Size
CNLM-3446	Ethylenediamine·2HCl ( $^{13}\text{C}_2$ , 99%; $^{15}\text{N}_2$ , 99%)	neat	Please inquire
CLM-9756	Galangin (2,3,4- $^{13}\text{C}_3$ , 99%) CP 95%	neat	1 mg
ULM-10281	Galangin (unlabeled)	neat	1 mg
CLM-10556	(±)-Gallocatechin (2,3,4- $^{13}\text{C}_3$ , 99%) CP 97%	neat	1 mg
CLM-10552	(±)-Gallocatechin gallate (2,3,4- $^{13}\text{C}_3$ , 99%) CP 97%	neat	1 mg
CNLM-6245	Glutathione (glycine- $^{13}\text{C}_2$ , 98%; $^{15}\text{N}$ , 96-99%) (65-70% net peptide) peptide purity 85-90%	neat	10 mg, 50 mg
CNLM-6245-HP	Glutathione (glycine- $^{13}\text{C}_2$ , 98%; $^{15}\text{N}$ , 96-99%) (90% net peptide) peptide purity 95%	neat	10 mg
CNLM-8782	Glutathione disulfide (glycines- $^{13}\text{C}_2$ , 98%; $^{15}\text{N}$ , 96-99%) (65-70% net peptide) peptide purity 90%	neat	5 mg
DLM-558	Glycerol ( $\text{D}_8$ , 99%)	neat	1 g, 5 g
DLM-1326	Glycerol [(OD) $_3$ , 98%]	neat	5 g, 10 g
NLM-6723	Guanidine·HBr ( $^{15}\text{N}_3$ , 98%)	neat	0.1 g
NEX-CRP-N	Human C-reactive protein (CRP) ( $^{15}\text{N}$ , 98%) CP 95%	100 µg/mL in 20 mM Tris-HCl (pH 8.0) with 100 mM NaCl	1 mL
NEX-CRP-N-D	Human C-reactive protein (CRP) ( $^{15}\text{N}$ , 98%) (denatured) CP 95%	100 µg/mL in 50 mM sodium acetate (pH 4.0) with 500 mM NaCl and 8 M urea	1 mL
CLM-10368	Hydrocinnamic acid (1- $^{13}\text{C}$ , 99%)	neat	Please inquire
CLM-8877	Hydrocinnamic acid (1,2,3- $^{13}\text{C}_3$ , 99%)	neat	0.1 g
CNLM-10399	DL-3-Hydroxykynurenine (1,2,3- $^{13}\text{C}_3$ , 98%; $\alpha$ -amino- $^{15}\text{N}$ , 98%) CP 95%	neat	1 mg
CLM-9260	4-Hydroxy-3-methoxycinnamic acid (1',2',3'- $^{13}\text{C}_3$ , 99%)	neat	1 mg, 5 mg
DLM-3033	Imidazole ( $\text{D}_4$ , 98%)	neat	1 g, 5 g
CLM-9755	Kaempferol (2,3,4- $^{13}\text{C}_3$ , 99%) CP 95%	Please inquire	Please inquire
CLM-11040	Kaempferol ( $\text{U-}^{13}\text{C}$ , 98%)	neat	Please inquire
CLM-7613	<i>trans</i> -Lycopene (8,8',9,9',10,10',11,11',19,19'- $^{13}\text{C}_{10}$ , 99%)	neat	Please inquire
CNLM-8150-10X-1.2	Melamine ( $^{13}\text{C}_3$ , 99%; amino- $^{15}\text{N}_3$ , 98%)	1000 µg/mL in water	1.2 mL
CNLM-8150-1.2	Melamine ( $^{13}\text{C}_3$ , 99%; amino- $^{15}\text{N}_3$ , 98%)	100 µg/mL in water	1.2 mL
DLM-7101	Melatonin (acetyl- $\text{D}_3$ , 98%)	neat	5 mg, 10 mg
CLM-359	Methanol ( $^{13}\text{C}$ , 99%)	neat	1 g, 5 g
DLM-1211	Methanol ( $\text{D}$ , 98%)	neat	5 g
DLM-1209	Methanol ( $\text{D}_2$ , 98%)	neat	5 g
CDLM-1035	Methanol ( $^{13}\text{C}$ , 99%; $\text{D}_3$ , 98%)	Please inquire	Please inquire
DLM-651	Methyl formate (formyl- $\text{D}$ , 99%)	neat	5 g, 10 g
CLM-9754	Myricetin (2,3,4- $^{13}\text{C}_3$ , 99%) CP 95%	neat	1 mg
CLM-10408	<i>N</i> -Phenyl-1-naphthylamine (phenyl- $^{13}\text{C}_6$ , 98%)	neat	1 mg
CLM-10409	<i>N</i> -Phenyl-2-naphthylamine (phenyl- $^{13}\text{C}_6$ , 98%)	neat	1 mg
CLM-7831	(±)-Pantoprazole, sodium salt sesquihydrate (pyridyl-4-methoxy- $^{13}\text{C}$ , 98%)	neat	Please inquire
NLM-765	Potassium nitrate ( $^{15}\text{N}$ , 99%)	neat	1 g
NLM-765-10	Potassium nitrate ( $^{15}\text{N}$ , 10%)	neat	Please inquire
CLM-222	Potassium thiocyanate ( $^{13}\text{C}$ , 95-99%) CP 95%	neat	0.5 g, 1 g
CNLM-3952	Potassium thiocyanate ( $^{13}\text{C}$ , 99%; $^{15}\text{N}$ , 98%)	neat	0.5 g
DLM-10542	Resorufin ( $\text{D}_6$ , 98%) CP 96%	neat	10 mg, 50 mg
CLM-9259	Resveratrol (4-hydroxyphenyl- $^{13}\text{C}_6$ , 99%)	neat	1 mg, 5 mg, 10 mg
DLM-3579	Serotonin creatinine sulfate complex ( $\alpha,\alpha,\beta,\beta\text{-D}_4$ , 98%)	neat	Please inquire
CLM-441	Sodium bicarbonate ( $^{13}\text{C}$ , 99%)	neat	1 g, 5 g
CLM-3780	Sodium dichloroacetate ( $^{13}\text{C}_2$ , 99%)	neat	Please inquire
CLM-9676	Sodium isopropyl carbonate (carbonyl- $^{13}\text{C}$ , 99%)	neat	Please inquire
NLM-157	Sodium nitrate ( $^{15}\text{N}$ , 98%)	neat	1 g, 5 g

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Catalog No.	Description	Concentration	Unit Size
CLM-3046	Thiourea ( $^{13}\text{C}$ , 99%)	neat	0.5 g
CNLM-4818	Thiourea ( $^{13}\text{C}$ , 99%; $^{15}\text{N}_2$ , 98%)	neat	0.5 g
CLM-10417	Toxoflavin (3,4 $\alpha$ ,5,8 $\alpha$ - $^{13}\text{C}_4$ , 98%) CP 95%	neat	1 mg
DLM-4779	Trimethylamine N-oxide ( $\text{D}_9$ , 98%)	neat	1 g
CLM-796	Vanillic acid (carboxyl- $^{13}\text{C}$ , 99%)	neat	0.1 g
CLM-1867	Vanillic acid (ring- $^{13}\text{C}_6$ , 99%)	neat	0.1 g

For a complete product listing, please visit [isotope.com](https://isotope.com).

## Steroids and Hormones

Steroids and hormones play vital roles in the regulation of a diverse array of cellular functions and physiological processes. These pertain to development, reproduction, homeostasis, and metabolism, among others. Accurate quantification of this compound class is essential for basic and clinical translation research. This can be achieved by spiking an isotopically labeled steroid standard(s) into a sample of interest, such as plasma or urine, with measurement performed by an MS- or NMR-based approach.

CIL offers a variety of stable isotope-labeled and unlabeled steroids and hormones. These are available in different labeling patterns in their neat and/or solution forms.

Catalog No.	Description	Concentration	Unit Size
DLM-10472-C	Aldosterone (9,11,12,12-D <sub>4</sub> , 98%) CP 97%	100 µg/mL in acetonitrile	1 mL
DLM-8438-C	Aldosterone (2,2,4,6,6,17,21,21-D <sub>8</sub> )	100 µg/mL in acetonitrile	1 mL
DLM-8438	Aldosterone (2,2,4,6,6,17,21,21-D <sub>8</sub> )	neat	1 mg, 2 mg, 5 mg
ULM-9134-C	Aldosterone (unlabeled)	100 µg/mL in acetonitrile	1 mL
ULM-9134	Aldosterone (unlabeled) CP 95%	neat	1 mg, 5 mg
DLM-10269	5α-Androstan-3β-ol-17-one (epiandrosterone) (2,2,4,4-D <sub>4</sub> , 98%)	neat	1 mg, 5 mg
ULM-10270	5α-Androstan-3β-ol-17-one (epiandrosterone) (unlabeled)	neat	1 mg
CLM-10548	5α-Androstan-3,17-dione (androstanedione) (2,3,4- <sup>13</sup> C <sub>3</sub> , 98%)	neat	1 mg
ULM-8794-C	5α-Androstan-3,17-dione (androstanedione) (unlabeled) CP 95%	100 µg/mL in methanol	1 mL
ULM-8794	5α-Androstan-3,17-dione (androstanedione) (unlabeled)	neat	1 mg
DLM-8750	5β-Androstan-3α-ol-17-one (etiocholanolone) (16,16-D <sub>2</sub> , 98%)	neat	Please inquire
DLM-10008-C	5β-Androstan-3α-ol-17-one (etiocholanolone) (2,2,3,4,4-D <sub>5</sub> , 98%)	100 µg/mL in methanol	1 mL
DLM-10008	5β-Androstan-3α-ol-17-one (etiocholanolone) (2,2,3,4,4-D <sub>5</sub> , 98%)	neat	1 mg
ULM-10009-C	5β-Androstan-3α-ol-17-one (etiocholanolone) (unlabeled)	100 µg/mL in methanol	1 mL
ULM-10009	5β-Androstan-3α-ol-17-one (etiocholanolone) (unlabeled)	neat	1 mg
DLM-9769-C	5α-Androstane-3α,17β-diol (16,16,17-D <sub>3</sub> , 98%) CP 95%	100 µg/mL in methanol	1 mL
DLM-9769	5α-Androstane-3α,17β-diol (16,16,17-D <sub>3</sub> , 98%) CP 95%	neat	1 mg
ULM-9752-C	5α-Androstane-3α,17β-diol (unlabeled)	100 µg/mL in methanol	1 mL
ULM-9752	5α-Androstane-3α,17β-diol (unlabeled)	neat	1 mg
ULM-10732	5α-Androstane-3β,17β-diol (unlabeled)	neat	1 mg
DLM-9787	Androstenediol glucuronide, sodium salt (16,16,17-D <sub>3</sub> , 98%) CP 97%	neat	1 mg
DLM-10396	4-Androsten-11β-ol-3,17-dione (9,11,12,12-D <sub>4</sub> , 98%)	neat	1 mg
DLM-9697	4-Androsten-11β-ol-3,17-dione (2,2,4,6,6,16,16-D <sub>7</sub> , 98%)	neat	Please inquire
DLM-10397	4-Androsten-11β-17β-diol-3-one (9,11,12,12-D <sub>4</sub> , 98%) CP 95%	neat	1 mg
DLM-10401-1.2	5-Androsten-3β-17β-diol (16,16,17-D <sub>3</sub> , 98%) CP 95%	100 µg/mL in methanol	1.2 mL
DLM-10401	5-Androsten-3β-17β-diol (16,16,17-D <sub>3</sub> , 98%) CP 95%	neat	1 mg
CLM-9135-D	4-Androstene-3,17-dione (2,3,4- <sup>13</sup> C <sub>3</sub> , 98%)	1000 µg/mL in methanol	1 mL
CLM-9135-C	4-Androstene-3,17-dione (2,3,4- <sup>13</sup> C <sub>3</sub> , 98%)	100 µg/mL in methanol	1 mL
CLM-9135	4-Androstene-3,17-dione (2,3,4- <sup>13</sup> C <sub>3</sub> , 98%)	neat	5 mg, 10 mg
DLM-8330	4-Androstene-3,17-dione (2,2,4,6,6-D <sub>5</sub> , 98%)	neat	0.05 g, 0.1 g
DLM-7976	4-Androstene-3,17-dione (2,2,4,6,6,16,16-D <sub>7</sub> , 97%)	neat	0.05 g, 0.1 g
ULM-8472	4-Androstene-3,17-dione (unlabeled)	neat	1 mg, 5 mg, 10 mg
DLM-10420-C	4-Androstene-6β,17β-diol-3-one (16,16,17-D <sub>3</sub> , 98%) CP 95%	100 µg/mL in methanol	1 mL
DLM-10420	4-Androstene-6β,17β-diol-3-one (16,16,17-D <sub>3</sub> , 98%)	neat	1 mg
DLM-11248	11-keto-Androstenedione (11-KA4) (D <sub>10</sub> , 90%) CP 95%	neat	Please inquire
DLM-7937	Androsterone (5α-androstan-3α-ol-17-one) (16,16-D <sub>2</sub> , 98%)	neat	Please inquire
DLM-10402-C	Androsterone (5α-androstan-3α-ol-17-one) (2,2,4,4-D <sub>4</sub> , 98%)	100 µg/mL in methanol	1 mL
DLM-10402	Androsterone (5α-androstan-3α-ol-17-one) (2,2,4,4-D <sub>4</sub> , 98%) CP 95%	neat	1 mg
ULM-10403-C	Androsterone (5α-androstan-3α-ol-17-one) (unlabeled)	100 µg/mL in methanol	1 mL
ULM-10403	Androsterone (5α-androstan-3α-ol-17-one) (unlabeled)	neat	1 mg
DLM-9137	Androsterone glucuronide, sodium salt (2,2,4,4-D <sub>4</sub> , 98%)	neat	Please inquire
ULM-9138	Androsterone glucuronide, sodium salt (unlabeled)	neat	5 mg, 10 mg
DLM-4700	5α-Cholestane (5α-choleane) (3,3-D <sub>2</sub> , 98%)	neat	Please inquire
DLM-8276	Cholestenone (2,2,4,6,6-D <sub>5</sub> , 98%)	neat	0.1 g

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Catalog No.	Description	Concentration	Unit Size
CLM-804	Cholesterol (3,4- <sup>13</sup> C <sub>2</sub> , 99%)	neat	0.1 g
CLM-9139-C	Cholesterol (2,3,4- <sup>13</sup> C <sub>3</sub> , 98%)	100 µg/mL in ethanol	1 mL
CLM-9139-B	Cholesterol (2,3,4- <sup>13</sup> C <sub>3</sub> , 98%)	50 µg/mL in ethanol	1 mL
CLM-9139	Cholesterol (2,3,4- <sup>13</sup> C <sub>3</sub> , 99%)	neat	2 mg, 5 mg
CLM-9587-1.2	Cholesterol (23,24,25,26,27- <sup>13</sup> C <sub>5</sub> , 99%)	100 µg/mL in methanol	1.2 mL
CLM-9587	Cholesterol (23,24,25,26,27- <sup>13</sup> C <sub>5</sub> , 99%)	neat	2 mg, 5 mg
DLM-1831	Cholesterol (3-D, 97%)	neat	Please inquire
DLM-7260	Cholesterol (25,26,26,26-D <sub>4</sub> , 98%)	neat	Please inquire
DLM-2607-C	Cholesterol (2,2,3,4,4,6-D <sub>6</sub> , 97-98%) CP 97%	100 µg/mL in ethanol	1 mL
DLM-2607	Cholesterol (2,2,3,4,4,6-D <sub>6</sub> , 97-98%)	neat	0.1 g
DLM-3057	Cholesterol (25,26,26,26,27,27,27-D <sub>7</sub> , 98%)	neat	10 mg, 0.1 g
OLM-7695	Cholesterol ( <sup>18</sup> O, 95%)	neat	Please inquire
ULM-9140-1.2	Cholesterol (unlabeled)	100 µg/mL in methanol	1.2 mL
ULM-9140	Cholesterol (unlabeled) CP 97%	neat	1 mg, 5 mg, 10 mg
CLM-3361	Cholesterol-3-octanoate (octanoate-1- <sup>13</sup> C, 99%)	neat	1 g
DLM-10416	Cholesterol-3-sulfate, sodium salt (25,26,26,26,27,27,27-D <sub>7</sub> , 98%)	neat	1 mg
DLM-11017-C	Corticosterone (9,11,12,12-D <sub>4</sub> , 98%) CP 97%	100 µg/mL in acetonitrile	1 mL
DLM-11017	Corticosterone (9,11,12,12-D <sub>4</sub> , 98%)	neat	1 mg, 5 mg
DLM-7347	Corticosterone (2,2,4,6,6,17α,21,21-D <sub>8</sub> , 97-98%)	neat	10 mg
ULM-9988-C	Corticosterone (unlabeled)	100 µg/mL in acetonitrile	1 mL
ULM-9988	Corticosterone (unlabeled)	neat	1 mg
CLM-10371-C	Cortisol (2,3,4- <sup>13</sup> C <sub>3</sub> , 99%)	100 µg/mL in methanol	1 mL
DLM-2615	Cortisol (1,2-D <sub>2</sub> , 98%)	neat	Please inquire
DLM-2057	Cortisol (9,12,12-D <sub>3</sub> , 98%)	neat	10 mg
DLM-2218	Cortisol (9,11,12,12-D <sub>4</sub> , 98%)	neat	0.1 mg, 10 mg
ULM-9141	Cortisol (unlabeled)	neat	1 mg, 5 mg, 10 mg
DLM-10471	Cortisol-21-sulfate, sodium salt (9,11,12,12-D <sub>4</sub> , 98%) CP 95%	neat	1 mg
CLM-10536-C	Cortisone (2,3,4- <sup>13</sup> C <sub>3</sub> , 98%) CP 97%	100 µg/mL in methanol	1 mL
DLM-8863	Cortisone (1,2-D <sub>2</sub> , 98%) CP 95%	neat	Please inquire
DLM-9142-C	Cortisone (2,2,4,6,6,12,12-D <sub>7</sub> , 98%)	100 µg/mL in methanol	1 mL
DLM-9976	Cortisone (2,2,4,6,6,9,12,12-D <sub>8</sub> , 98%)	neat	1 mg, 5 mg
ULM-9202-C	Cortisone (unlabeled)	100 µg/mL in methanol	1 mL
ULM-9202	Cortisone (unlabeled)	neat	1 mg, 5 mg, 10 mg
CLM-10537-C	Cortisone 21-sulfate, sodium salt (2,3,4- <sup>13</sup> C <sub>3</sub> , 98%) CP 95%	100 µg/mL in methanol	1 mL
DLM-4216	7-Dehydrocholesterol (25,26,26,26,27,27,27-D <sub>7</sub> , 98%)	neat	Please inquire
CLM-10549-C	Dehydroepiandrosterone (DHEA) (2,3,4- <sup>13</sup> C <sub>3</sub> , 99%)	100 µg/mL in methanol	1 mL
CLM-10549	Dehydroepiandrosterone (DHEA) (2,3,4- <sup>13</sup> C <sub>3</sub> , 99%)	neat	1 mg
DLM-7714	Dehydroepiandrosterone (DHEA) (16,16-D <sub>2</sub> , 97%)	neat	0.1 g
DLM-8049-C	Dehydroepiandrosterone (DHEA) (2,2,3,4,4,6-D <sub>6</sub> , 97%)	100 µg/mL in methanol	1 mL
DLM-8049	Dehydroepiandrosterone (DHEA) (2,2,3,4,4,6-D <sub>6</sub> , 98%) CP 97%	neat	5 mg
ULM-9143-D	Dehydroepiandrosterone (DHEA) (unlabeled)	1000 µg/mL in methanol	1 mL
ULM-9143-C	Dehydroepiandrosterone (DHEA) (unlabeled)	100 µg/mL in methanol	1 mL
ULM-9143	Dehydroepiandrosterone (DHEA) (unlabeled)	neat	1 mg, 5 mg, 10 mg
DLM-8701	Dehydroepiandrosterone sulfate, sodium salt (DHEAS) (16,16-D <sub>2</sub> , 97%)	neat	Please inquire
ULM-9144-D	Dehydroepiandrosterone sulfate, sodium salt (DHEAS) (unlabeled)	1000 µg/mL in methanol	1 mL
ULM-9144-C	Dehydroepiandrosterone sulfate, sodium salt (DHEAS) (unlabeled)	100 µg/mL in methanol	1 mL
ULM-9144	Dehydroepiandrosterone sulfate, sodium salt (DHEAS) (unlabeled)	neat	1 mg, 5 mg, 10 mg
DLM-8337-C	Dehydroepiandrosterone sulfate, sodium salt-2H <sub>2</sub> O (DHEAS) (2,2,3,4,4,6-D <sub>6</sub> , 95%)	100 µg/mL in methanol	1 mL
DLM-8337	Dehydroepiandrosterone sulfate, sodium salt-2H <sub>2</sub> O (DHEAS) (2,2,3,4,4,6-D <sub>6</sub> , 95%)	neat	5 mg
CLM-10384-C	11-Deoxycortisol (2,3,4- <sup>13</sup> C <sub>3</sub> , 99%) CP 97%	100 µg/mL in methanol	1 mL
CLM-10384	11-Deoxycortisol (2,3,4- <sup>13</sup> C <sub>3</sub> , 99%) CP 97%	neat	1 mg
DLM-7209	11-Deoxycortisol (21,21-D <sub>2</sub> , 96%)	neat	5 mg, 10 mg

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## Steroids and Hormones (continued)

Catalog No.	Description	Concentration	Unit Size
DLM-8336-C	11-Deoxycortisol (2,2,4,6,6-D <sub>5</sub> , 98%)	100 µg/mL in methanol	1 mL
DLM-8336	11-Deoxycortisol (2,2,4,6,6-D <sub>5</sub> , 98%) CP 97%	neat	5 mg, 10 mg
ULM-9145-D	11-Deoxycortisol (unlabeled)	1000 µg/mL in methanol	1 mL
ULM-9145-C	11-Deoxycortisol (unlabeled)	100 µg/mL in methanol	1 mL
ULM-9145	11-Deoxycortisol (unlabeled)	neat	1 mg, 5 mg, 10 mg
DLM-11414	21-Deoxycortisol (9,11,11,12-D <sub>4</sub> , 98%) CP 95%	neat	Please inquire
DLM-8305	21-Deoxycortisol (2,2,4,6,6,21,21,21-D <sub>8</sub> , 97%)	neat	10 mg
ULM-9987-C	21-Deoxycortisol (unlabeled)	100 µg/mL in methanol	1 mL
ULM-9987	21-Deoxycortisol (unlabeled)	neat	1 mg
DLM-170-D-1.2	Diethylstilbestrol ( <i>cis/trans</i> mix) (ring-3,3',5,5'-diethyl-1,1,1',1'-D <sub>8</sub> , 98%)	100 µg/mL in dioxane	1.2 mL
DLM-170	Diethylstilbestrol ( <i>cis/trans</i> mix) (ring-3,3',5,5'-diethyl-1,1,1',1'-D <sub>8</sub> , 98%)	neat	0.05 g, 0.1 g
CLM-9146-D	5α-Dihydrotestosterone (2,3,4- <sup>13</sup> C <sub>3</sub> , 99%) CP 97%	1000 µg/mL in methanol	1 mL
CLM-9146-C	5α-Dihydrotestosterone (2,3,4- <sup>13</sup> C <sub>3</sub> , 99%) CP 97%	100 µg/mL in methanol	1 mL
CLM-9146	5α-Dihydrotestosterone (2,3,4- <sup>13</sup> C <sub>3</sub> , 99%) CP 97%	neat	1 mg, 5 mg, 10 mg
DLM-3023	5α-Dihydrotestosterone (16,16,17-D <sub>3</sub> , 98%)	neat	Please inquire
DLM-9041	5α-Dihydrotestosterone (2,2,4,4-D <sub>4</sub> , 98%) CP 95%	neat	1 mg
ULM-8364-D	5α-Dihydrotestosterone (unlabeled)	1 mg/mL in methanol	1 mL
ULM-8364-C	5α-Dihydrotestosterone (unlabeled)	100 µg/mL in methanol	1 mL
ULM-8364	5α-Dihydrotestosterone (unlabeled)	neat	Please inquire
CLM-9222-C	L-3,3'-Diiodothyronine (T2) (phenoxy- <sup>13</sup> C <sub>6</sub> , 99%) CP 97%	100 µg/mL in 0.1 N ammonia in methanol	1 mL
CLM-9222	L-3,3'-Diiodothyronine (T2) (phenoxy- <sup>13</sup> C <sub>6</sub> , 99%) CP 97%	neat	1 mg, 5 mg
ULM-9223-C	L-3,3'-Diiodothyronine (T2) (unlabeled)	100 µg/mL in 0.1 N ammonia in methanol	1 mL
ULM-9223	L-3,3'-Diiodothyronine (T2) (unlabeled)	neat	1 mg, 5 mg, 10 mg
CLM-7768	Epicholesterol (3,4- <sup>13</sup> C <sub>2</sub> , 99%)	neat	0.1 g
DLM-9088	DL-Epinephrine (ring-D <sub>3</sub> ,1,2,2-D <sub>3</sub> , 98%)	neat	Please inquire
CNLM-7889	DL-Epinephrine (1,2- <sup>13</sup> C <sub>2</sub> , 99%; <sup>15</sup> N, 98%)	neat	10 mg
CLM-11416	Epitestosterone (2,3,4- <sup>13</sup> C <sub>3</sub> , 98%) CP 95%	neat	Please inquire
CLM-803-1.2	Estradiol (3,4- <sup>13</sup> C <sub>2</sub> , 99%)	100 µg/mL in acetonitrile	1.2 mL
CLM-803	Estradiol (3,4- <sup>13</sup> C <sub>2</sub> , 99%)	neat	Please inquire
DLM-3694	Estradiol (16,16,17-D <sub>3</sub> , 98%) CP 95%	neat	1 mg, 10 mg
DLM-2487	Estradiol (2,4,16,16-D <sub>4</sub> , 95-97%)	neat	5 mg
ULM-7449-1.2	Estradiol (unlabeled)	100 µg/mL in acetonitrile	1.2 mL
ULM-7449	Estradiol (unlabeled)	neat	0.1 mg
CLM-7936-1.2	DL-Estradiol (13,14,15,16,17,18- <sup>13</sup> C <sub>6</sub> , 99%)	100 µg/mL in methanol	1.2 mL
CLM-7936	DL-Estradiol (13,14,15,16,17,18- <sup>13</sup> C <sub>6</sub> , 99%)	neat	0.1 mg
CLM-10404-C	Estradiol undecanoate (2,3,4- <sup>13</sup> C <sub>3</sub> , 98%) CP 95%	100 µg/mL in methanol	1 mL
CLM-10404	Estradiol undecanoate (2,3,4- <sup>13</sup> C <sub>3</sub> , 98%) CP 95%	neat	1 mg
CLM-9147-C	Estriol (16α-hydroxyestradiol) (2,3,4- <sup>13</sup> C <sub>3</sub> , 99%) CP 97%	100 µg/mL in methanol	1 mL
CLM-9147	Estriol (16α-hydroxyestradiol) (2,3,4- <sup>13</sup> C <sub>3</sub> , 99%) CP 97%	neat	0.1 mg, 0.25 mg, 0.5 mg, 1 mg
DLM-8586	Estriol (2,4,16-D <sub>3</sub> , 98%) CP 96%	neat	5 mg, 10 mg
DLM-8343	Estriol (2,4,17-D <sub>3</sub> , 98%) CP 96%	neat	Please inquire
ULM-8218	Estriol (unlabeled)	neat	0.1 mg
CLM-673-1.2	Estrone (3,4- <sup>13</sup> C <sub>2</sub> , 90%)	100 µg/mL in acetonitrile	1.2 mL
CLM-673	Estrone (3,4- <sup>13</sup> C <sub>2</sub> , 99%)	neat	Please inquire
CLM-9148-C	Estrone (2,3,4- <sup>13</sup> C <sub>3</sub> , 99%)	100 µg/mL in methanol	1 mL
CLM-9148-B	Estrone (2,3,4- <sup>13</sup> C <sub>3</sub> , 99%)	50 µg/mL in methanol	1 mL
CLM-9148	Estrone (2,3,4- <sup>13</sup> C <sub>3</sub> , 99%)	neat	1 mg, 5 mg
DLM-3976	Estrone (2,4,16,16-D <sub>4</sub> , 97%)	neat	5 mg
CLM-7935-1.2	DL-Estrone (13,14,15,16,17,18- <sup>13</sup> C <sub>6</sub> , 99%) CP 95%	100 µg/mL in methanol	1.2 mL
CLM-7935	DL-Estrone (13,14,15,16,17,18- <sup>13</sup> C <sub>6</sub> , 99%) CP 95%	neat	0.1 mg

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Catalog No.	Description	Concentration	Unit Size
CLM-8033	DL-Estrone 3-methyl ether (13,14,15,16,17,18- <sup>13</sup> C <sub>6</sub> , 99%)	neat	0.1 mg
ULM-10356	Estrone 3-methyl ether (unlabeled)	neat	0.1 mg
CLM-3375-1.2	Ethinylestradiol (20,21- <sup>13</sup> C <sub>2</sub> , 99%) CP 97%	100 µg/mL in acetonitrile	1.2 mL
ULM-7211-1.2	Ethinylestradiol (unlabeled)	100 µg/mL in acetonitrile	1.2 mL
DLM-4691	17α-Ethinylestradiol (2,4,16,16-D <sub>4</sub> , 97-98%)	neat	10 mg
CLM-11415	7α-Hydroxy-4-cholesten-3-one (23,24,25,26,27- <sup>13</sup> C <sub>5</sub> , 98%) CP 95%	neat	Please inquire
DLM-8646	7β-Hydroxycholesterol (25,26,26,26,27,27,27-D <sub>7</sub> , 98%) CP 97%	neat	Please inquire
ULM-10267	7α-Hydroxycholesterol (unlabeled)	neat	1 mg
ULM-10268	7β-Hydroxycholesterol (unlabeled)	neat	Please inquire
DLM-9150-C	18-Hydroxycorticosterone (9,11,12,12-D <sub>4</sub> , 98%)	100 µg/mL in acetonitrile	1 mL
DLM-9150	18-Hydroxycorticosterone (9,11,12,12-D <sub>4</sub> , 98%) CP 95%	neat	1 mg
ULM-9151-C	18-Hydroxycorticosterone (unlabeled) CP 95%	100 µg/mL in methanol	1 mL
ULM-9151	18-Hydroxycorticosterone (unlabeled) CP 95%	neat	1 mg
ULM-10007-C	18-Hydroxycortisol (unlabeled) CP 97%	100 µg/mL in methanol	1 mL
ULM-10007	18-Hydroxycortisol (unlabeled) CP 95%	neat	1 mg
ULM-8134	2-Hydroxyestrone (unlabeled)	neat	0.1 mg
ULM-8261	4-Hydroxyestrone (unlabeled) CP 96%	neat	0.1 mg
CLM-8012	DL-2-Hydroxyestradiol (13,14,15,16,17,18- <sup>13</sup> C <sub>6</sub> , 99%)	neat	0.1 mg
ULM-8133	2-Hydroxyestrone-3-methyl ether (unlabeled) CP 97%	neat	0.1 mg
CLM-9153-C	16α-Hydroxyestrone (2,3,4- <sup>13</sup> C <sub>3</sub> , 99%)	100 µg/mL in methanol	1 mL
ULM-9152-C	16α-Hydroxyestrone (unlabeled)	100 µg/mL in methanol	1 mL
CLM-9153	16α-Hydroxyestrone (2,3,4- <sup>13</sup> C <sub>3</sub> , 99%)	neat	0.1 mg, 0.25 mg, 0.5 mg, 1 mg
CLM-8011	DL-2-Hydroxyestrone (13,14,15,16,17,18- <sup>13</sup> C <sub>6</sub> , 99%)	neat	0.1 mg
CLM-8016	DL-2-Hydroxyestrone-3-methyl ether (13,14,15,16,17,18- <sup>13</sup> C <sub>6</sub> , 99%)	neat	0.1 mg
CLM-8013	DL-4-Hydroxyestrone (13,14,15,16,17,18- <sup>13</sup> C <sub>6</sub> , 99%) CP 97%	neat	0.1 mg
DLM-7206	17α-Hydroxypregnenolone (21,21,21-D <sub>3</sub> , 97%)	neat	Please inquire
CDLM-9154-C	17α-Hydroxypregnenolone (20,21- <sup>13</sup> C <sub>2</sub> , 98%; 16,16-D <sub>2</sub> , 98%)	100 µg/mL in methanol	1 mL
CDLM-9154	17α-Hydroxypregnenolone (20,21- <sup>13</sup> C <sub>2</sub> , 98%; 16,16-D <sub>2</sub> , 98%)	neat	1 mg
ULM-9155-C	17α-Hydroxypregnenolone (unlabeled)	100 µg/mL in methanol	1 mL
ULM-9155	17α-Hydroxypregnenolone (unlabeled)	neat	Please inquire
CLM-9157-D	17α-Hydroxyprogesterone (2,3,4- <sup>13</sup> C <sub>3</sub> , 98%)	1000 µg/mL in methanol	1 mL
CLM-9157-C	17α-Hydroxyprogesterone (2,3,4- <sup>13</sup> C <sub>3</sub> , 98%)	100 µg/mL in methanol	1 mL
CLM-9157	17α-Hydroxyprogesterone (2,3,4- <sup>13</sup> C <sub>3</sub> , 98%)	neat	1 mg, 5 mg
DLM-6598	17α-Hydroxyprogesterone (2,2,4,6,6,21,21-D <sub>8</sub> , 98%)	neat	10 mg, 0.05 g
ULM-9156-C	17α-Hydroxyprogesterone (unlabeled) CP 95%	100 µg/mL in methanol	1 mL
ULM-9156	17α-Hydroxyprogesterone (unlabeled)	neat	1 mg, 5 mg, 10 mg
DLM-11248	11-Ketoandrostenedione (11-KA4) (D <sub>10</sub> , 98%) CP 95%	neat	Please inquire
DLM-8647	7-Ketocholesterol (7-KC) (25,26,26,26,27,27,27-D <sub>7</sub> , 99%)	neat	Please inquire
DLM-10395	11-Ketotestosterone (11-KT) (16,16,17-D <sub>3</sub> ) CP 95%	neat	1 mg
DLM-7101	Melatonin (acetyl-D <sub>3</sub> , 98%)	neat	5 mg, 10 mg
DLM-3560	DL-Metanephrine·HCl (α,β,β-D <sub>3</sub> , 98%)	neat	5 mg, 10 mg
CLM-8015	DL-2-Methoxyestradiol (13,14,15,16,17,18- <sup>13</sup> C <sub>6</sub> , 99%)	neat	0.1 mg
ULM-8137	DL-2-Methoxyestradiol (unlabeled)	neat	0.1 mg
CLM-8014	DL-2-Methoxyestrone (13,14,15,16,17,18- <sup>13</sup> C <sub>6</sub> , 99%)	neat	0.1 mg
CLM-8017	DL-4-Methoxyestrone (13,14,15,16,17,18- <sup>13</sup> C <sub>6</sub> , 99%)	neat	0.1 mg
ULM-8263	2-Methoxyestrone (unlabeled)	neat	0.1 mg
ULM-8262	4-Methoxyestrone (unlabeled)	neat	0.1 mg
DLM-8820	DL-Norepinephrine·HCl (ring-D <sub>3</sub> , 1,2,2-D <sub>3</sub> , 99%)	neat	5 mg, 10 mg
CLM-2468	Norethindrone (ethynyl- <sup>13</sup> C <sub>2</sub> , 99%)	neat	10 mg
CLM-9980	Nestorone (16-methylene- <sup>13</sup> C, 20,21- <sup>13</sup> C <sub>2</sub> , 99%) CP 96%	neat	Please inquire
DLM-8609	DL-Normetanephrine·HCl (α,β,β-D <sub>3</sub> , 98%)	neat	5 mg, 10 mg

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## Steroids and Hormones (continued)

Catalog No.	Description	Concentration	Unit Size
DLM-3979-1.2	19-Nortestosterone (16,16,17-D <sub>3</sub> , 98%)	100 µg/mL in methanol	1.2 mL
DLM-3979	19-Nortestosterone (16,16,17-D <sub>3</sub> , 98%)	neat	5 mg
ULM-4841-1.2	19-Nortestosterone (unlabeled)	100 µg/mL in methanol	1.2 mL
DLM-3754	5α-Pregnan-3α-ol-20-one (17,21,21,21-D <sub>4</sub> , 96-98%) CP 95%	neat	10 mg
DLM-7492	5α-Pregnan-3β-ol-20-one (17α,21,21,21-D <sub>4</sub> , 97%) CP 96%	neat	Please inquire
ULM-8242	5α-Pregnan-3β-ol-20-one (unlabeled)	neat	1 mg
DLM-10969-C	5α-Pregnan-3α,11β,17,21-tetrol-20-one (2,2,3,4,4-D <sub>5</sub> , 98%)	100 µg/mL in methanol	1 mL
DLM-10969	5α-Pregnan-3α,11β,17,21-tetrol-20-one (2,2,3,4,4-D <sub>5</sub> , 98%)	neat	1 mg
DLM-11010-C	5α-Pregnan-3α,17,21-triol-11,20-dione (2,2,4,4-D <sub>4</sub> , 98%)	100 µg/mL in methanol	1 mL
DLM-11010	5α-Pregnan-3α,17,21-triol-11,20-dione (2,2,4,4-D <sub>4</sub> , 98%)	neat	Please inquire
DLM-11009-C	5α-Pregnan-3α,17,21-triol-11,20-dione (2,2,3,4,4-D <sub>5</sub> , 98%)	100 µg/mL in methanol	1 mL
DLM-11009	5α-Pregnan-3α,17,21-triol-11,20-dione (2,2,3,4,4-D <sub>5</sub> , 98%)	neat	Please inquire
DLM-2294	5β-Pregnan-3α-ol-20-one (17,21,21,21-D <sub>4</sub> , 96-98%)	neat	10 mg
DLM-8751	5β-Pregnan-3α,11β,17α,21-tetrol-20-one (9,11α,12-D <sub>3</sub> , 95%)	neat	Please inquire
DLM-11014-C	5β-Pregnan-3α,11β,17α,21-tetrol-20-one (2,2,3,4,4-D <sub>5</sub> , 98%)	100 µg/mL in methanol	1 mL
DLM-11014	5β-Pregnan-3α,11β,17α,21-tetrol-20-one (2,2,3,4,4-D <sub>5</sub> , 98%)	neat	1 mg
ULM-11015-C	5β-Pregnan-3α,11β,17α,21-tetrol-20-one (unlabeled)	100 µg/mL in methanol	1 mL
ULM-11015	5β-Pregnan-3α,11β,17α,21-tetrol-20-one (unlabeled)	neat	1 mg
DLM-11012-C	5β-Pregnan-3α,11β,21-triol-20-one (2,2,3,4,4-D <sub>5</sub> , 98%) CP 95%	100 µg/mL in methanol	1 mL
DLM-11012	5β-Pregnan-3α,11β,21-triol-20-one (2,2,3,4,4-D <sub>5</sub> , 98%) CP 95%	neat	1 mg
ULM-11011-C	5β-Pregnan-3α,11β,21-triol-20-one (unlabeled)	100 µg/mL in methanol	1 mL
ULM-11011	5β-Pregnan-3α,11β,21-triol-20-one (unlabeled)	neat	1 mg
DLM-11013-C	5β-Pregnan-3α,17,21-triol-11,20-dione (2,2,3,4,4-D <sub>5</sub> , 98%)	100 µg/mL in methanol	1 mL
DLM-11013	5β-Pregnan-3α,17,21-triol-11,20-dione (2,2,3,4,4-D <sub>5</sub> , 98%)	neat	1 mg
DLM-8753	5β-Pregnan-3α,17α,20-triol (20,21,21,21-D <sub>4</sub> , 98%) (mix of 20α and 20β)	neat	Please inquire
DLM-10413	5β-Pregnane-3α-20α-diol (2,2,3,4,4-D <sub>5</sub> , 98%), 99% CP 95%	neat	1 mg
CLM-10412	5β-Pregnane-3α-20α-diol glucuronide, sodium salt (2,3,4,20,21- <sup>13</sup> C <sub>5</sub> , 99%) CP 95%	neat	1 mg
DLM-3910	5α-Pregnane-3α,21-diol-20-one (17,21,21-D <sub>3</sub> , 95%)	neat	10 mg
ULM-10385	5α-Pregnane-3α,21-diol-20-one (unlabeled)	neat	1 mg
DLM-3816	5α-Pregnane-3,20-dione (1,2,4,5,6,7-D <sub>6</sub> , 95%)	neat	10 mg, 0.05 g
DLM-9901	5β-Pregnane-3,20-dione (2,2,4,4,17α,21,21,21-D <sub>8</sub> , 98%) CP 97%	neat	Please inquire
CLM-10010-C	4-Pregnen-21-ol-3,20-dione (2,3,4- <sup>13</sup> C <sub>3</sub> , 99%)	100 µg/mL in methanol	1 mL
CLM-10010	4-Pregnen-21-ol-3,20-dione (2,3,4- <sup>13</sup> C <sub>3</sub> , 99%)	neat	Please inquire
DLM-11249	4-Pregnen-21-ol-3,20-dione (2,2,6,6,17,21,21-D <sub>7</sub> , 96%)	neat	Please inquire
DLM-7228	4-Pregnen-21-ol-3,20-dione (2,2,4,6,6,17,21,21-D <sub>8</sub> , 96%) CP 97%	neat	Please inquire
ULM-10011-C	4-Pregnen-21-ol-3,20-dione (unlabeled)	100 µg/mL in methanol	1 mL
ULM-10011	4-Pregnen-21-ol-3,20-dione (unlabeled)	neat	1 mg
DLM-6896	Pregnenolone (17,21,21,21-D <sub>4</sub> , 98%)	neat	10 mg
CDLM-9158-C	Pregnenolone (20,21- <sup>13</sup> C <sub>2</sub> , 99%; 16,16-D <sub>2</sub> , 98%)	100 µg/mL in acetonitrile	1 mL
CDLM-9158	Pregnenolone (20,21- <sup>13</sup> C <sub>2</sub> , 98%; 16,16-D <sub>2</sub> , 98%)	neat	1 mg, 5 mg
ULM-9159-C	Pregnenolone (unlabeled)	100 µg/mL in methanol	1 mL
ULM-9159	Pregnenolone (unlabeled)	neat	1 mg, 5 mg, 10 mg
CDLM-9160	Pregnenolone sulfate, sodium salt (20,21- <sup>13</sup> C <sub>2</sub> , 99%; 16,16-D <sub>2</sub> , 98%)	neat	1 mg, 5 mg
ULM-9161	Pregnenolone sulfate, sodium salt (unlabeled)	neat	1 mg, 5 mg, 10 mg
CLM-457	Progesterone (3,4- <sup>13</sup> C <sub>2</sub> , 90%)	neat	10 mg
CLM-9162-C	Progesterone (2,3,4- <sup>13</sup> C <sub>3</sub> , 99%)	100 µg/mL in acetonitrile	1 mL
CLM-9162-B	Progesterone (2,3,4- <sup>13</sup> C <sub>3</sub> , 99%)	50 µg/mL in acetonitrile	1 mL
CLM-9162	Progesterone (2,3,4- <sup>13</sup> C <sub>3</sub> , 99%)	neat	1 mg, 5 mg
CLM-10414	Progesterone (2,3,4,20,21- <sup>13</sup> C <sub>5</sub> , 99%)	neat	1 mg
DLM-7953-1.2	Progesterone (2,2,4,6,6,17α,21,21,21-D <sub>9</sub> , 98%)	100 µg/mL in <i>p</i> -dioxane	1.2 mL
DLM-7953	Progesterone (2,2,4,6,6,17α,21,21,21-D <sub>9</sub> , 98%)	neat	10 mg
ULM-8219-1.2	Progesterone (unlabeled)	100 µg/mL in <i>p</i> -dioxane	1.2 mL

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.

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Catalog No.	Description	Concentration	Unit Size
DLM-3627	Prostaglandin A2 (3,3,4,4-D <sub>4</sub> , 98%)	500 µg/mL in methyl acetate	Please inquire
DLM-3728	Prostaglandin E1 (3,3,4,4-D <sub>4</sub> , 98%)	500 µg/mL in methyl acetate	Please inquire
DLM-3628	Prostaglandin E2 (3,3,4,4-D <sub>4</sub> , 98%)	500 µg/mL in methyl acetate	Please inquire
DLM-3558	Prostaglandin-F2α (3,3,4,4-D <sub>4</sub> , 98%)	Please inquire	Please inquire
DLM-7457	Sodium 17β-estradiol 3-sulfate (2,4,16,16-D <sub>4</sub> , 98%) (stabilized with 50% w/w Tris)	neat	Please inquire
DLM-7456	Sodium estrone 3-sulfate (2,4,16,16-D <sub>4</sub> , 98%) (stabilized with 50% w/w Tris)	neat	Please inquire
ULM-8132	Sodium estrone 3-sulfate (unlabeled)	neat	0.1 mg
DLM-9503	Stigmastanol (2,2,3,4,4-D <sub>5</sub> , 98%)	neat	10 mg
CLM-159	Testosterone (3,4- <sup>13</sup> C <sub>2</sub> , 99%)	neat	10 mg
CLM-9164-C	Testosterone (2,3,4- <sup>13</sup> C <sub>3</sub> , 99%)	100 µg/mL in methanol	1 mL
CLM-9164	Testosterone (2,3,4- <sup>13</sup> C <sub>3</sub> , 99%)	neat	5 mg, 10 mg
DLM-683-1.2	Testosterone (1,2-D <sub>2</sub> , 98%)	100 µg/mL in methylene chloride	1.2 mL
DLM-683	Testosterone (1,2-D <sub>2</sub> , 98%)	neat	0.1 g
DLM-6224-C	Testosterone (16,16,17-D <sub>3</sub> , 98%)	100 µg/mL in methanol	1 mL
DLM-6224	Testosterone (16,16,17-D <sub>3</sub> , 98%)	neat	5 mg
DLM-8085-D-1.2	Testosterone (2,2,4,6,6-D <sub>5</sub> , 98%)	100 µg/mL in dioxane	1.2 mL
DLM-8085-1.2	Testosterone (2,2,4,6,6-D <sub>5</sub> , 98%)	100 µg/mL in methylene chloride	1.2 mL
DLM-8085	Testosterone (2,2,4,6,6-D <sub>5</sub> , 98%)	neat	Please inquire
ULM-8081-1.2	Testosterone (unlabeled)	100 µg/mL in methylene chloride	1.2 mL
DLM-8265	Testosterone diacetate (testosterone-D <sub>4</sub> , acetate methyl-D <sub>6</sub> , 98%)	neat	Please inquire
DLM-11016-C	3α,5β-Tetrahydroaldosterone (2,2,4,4,6,6-D <sub>6</sub> , 98%) CP 95%	100 µg/mL in acetonitrile	1 mL
DLM-11016	3α,5β-Tetrahydroaldosterone (2,2,4,4,6,6-D <sub>6</sub> , 98%) CP 95%	neat	Please inquire
ULM-9163	3α,5β-Tetrahydroaldosterone (unlabeled)	neat	1 mg, 5 mg
CLM-7185-C	3,3',5-Triiodo-L-thyronine·HCl (T3) (ring- <sup>13</sup> C <sub>6</sub> , 99%)	100 µg/mL 0.1 N NH <sub>3</sub> in methanol	1 mL
CLM-7185	3,3',5-Triiodo-L-thyronine·HCl (T3) (ring- <sup>13</sup> C <sub>6</sub> , 99%) CP 95%	neat	1 mg, 5 mg, 10 mg
CLM-10596	3,3',5-Triiodo-L-thyronine (T3) (ring- <sup>13</sup> C <sub>12</sub> , 99%) CP 94%	neat	Please inquire
ULM-10573-C	3,3',5-Triiodo-L-thyronine·HCl (T3) (unlabeled) CP 95%	100 µg/mL 0.1 N NH <sub>3</sub> in methanol	1 mL
ULM-10573	3,3',5-Triiodo-L-thyronine·HCl (T3) (unlabeled) CP 95%	neat	1 mg, 5 mg, 10 mg
CLM-10601-C	Reverse 3,3',5-triiodo-L-thyronine·HCl (rT3) (diiodophenyl-ring- <sup>13</sup> C <sub>6</sub> , 99%)	100 µg/mL 0.1 N NH <sub>3</sub> in methanol	1 mL
CLM-10601	Reverse 3,3',5-triiodo-L-thyronine·HCl (rT3) (diiodophenyl-ring- <sup>13</sup> C <sub>6</sub> , 99%) CP 95%	neat	1 mg, 5 mg, 10 mg
ULM-10602-C	Reverse 3,3',5-triiodo-L-thyronine·HCl (rT3) (unlabeled) CP 95%	100 µg/mL 0.1 N NH <sub>3</sub> in methanol	1 mL
DLM-10026	Triamcinolone hexacetonide (16,17-isopropylidenedioxy-D <sub>6</sub> , 98%)	neat	Please inquire
DLM-6989	Tryptamine·HCl (α,α,β,β-D <sub>4</sub> , 97%)	neat	Please inquire

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## Vitamins and Their Metabolites

Vitamins are organic compounds that directly or indirectly participate in organisms' biochemical reactions. These are divided into two classes, based on their solubility in fat (includes A, D, E, and K) and water (includes B and C).

CIL offers unlabeled and stable isotope-labeled vitamins as neat compounds and/or in solution at specified concentrations. These can be used in a wide range of applications, such as metabolism and pathophysiology explorations, as well as disease biomarker evaluation in preclinical and clinical MS studies (e.g., vitamin D deficiency). These standards help facilitate accurate and precise quantification of endogenous metabolites in biological matrices.

### Water Soluble

Catalog No.	Description	Concentration	Unit Size
CLM-9548	5-Methyltetrahydrofolic acid (prefolic A) (glutamic acid- $^{13}\text{C}_5$ , 99%) CP 95%	neat	1 mg, 5 mg
CLM-7321-N	5-Methyltetrahydrofolic acid, calcium salt (prefolic A) (glutamic acid- $^{13}\text{C}_5$ , 98%) CP 95%	neat	1 mg, 5 mg
CLM-7667	Vitamin B <sub>1</sub> hydrochloride (thiamine hydrochloride) (4,5,4-methyl- $^{13}\text{C}_3$ , 99%) CP 97%	neat	5 mg
ULM-10004	Vitamin B <sub>1</sub> hydrochloride (thiamine hydrochloride) (unlabeled)	neat	1 mg, 5 mg, 10 mg
V-053*	Vitamin B <sub>1</sub> pyrophosphate (thiamine pyrophosphate) (unlabeled)	1 mg/mL in methanol:water (1:1)	1 mL
DLM-8741	Vitamin B <sub>1</sub> pyrophosphate chloride (thiamine pyrophosphate chloride) (pyrimidyl-methyl-D <sub>3</sub> , 98%)	neat	1 mg
CNLM-8851	Vitamin B <sub>2</sub> (riboflavin) ( $^{13}\text{C}_4$ , 99%; $^{15}\text{N}_2$ , 98%) CP 97%	neat	1 mg, 5 mg, 10 mg
ULM-9123	Vitamin B <sub>2</sub> (riboflavin) (unlabeled) CP 97%	neat	1 mg, 5 mg, 10 mg
CNLM-10744	Vitamin B <sub>2</sub> phosphate (riboflavin phosphate) ( $^{13}\text{C}_4$ , 99%; $^{15}\text{N}_2$ , 98%) CP 90%	neat	1 mg
CLM-9925	Vitamin B <sub>3</sub> (nicotinamide) ( $^{13}\text{C}_6$ , 99%)	neat	1 mg, 5 mg
DLM-6883	Vitamin B <sub>3</sub> (nicotinamide) (D <sub>4</sub> , 98%)	neat	0.1 g, 0.5 g
CNLM-9757	Vitamin B <sub>3</sub> (nicotinamide) (2,6-carbonyl- $^{13}\text{C}_3$ , 99%; ring-1- $^{15}\text{N}$ , 98%)	neat	1 mg
CLM-9954	Vitamin B <sub>3</sub> (nicotinic acid) ( $^{13}\text{C}_6$ , 99%)	neat	1 mg, 5 mg
DLM-4578	Vitamin B <sub>3</sub> (nicotinic acid) (D <sub>4</sub> , 98%)	neat	5 mg, 1 g
CNLM-9512	Vitamin B <sub>3</sub> (nicotinic acid) (2,6-carboxyl- $^{13}\text{C}_3$ , 99%; $^{15}\text{N}$ , 98%) CP 97%	neat	1 mg
DLM-2872	Vitamin B <sub>3</sub> , ethyl ester (nicotinic acid, ethyl ester) (2,4,5,6-D <sub>4</sub> , 98%)	neat	5 g
CNLM-7694	Vitamin B <sub>5</sub> , calcium salt·H <sub>2</sub> O (calcium pantothenate·H <sub>2</sub> O) (β-alanyl- $^{13}\text{C}_3$ , 99%; $^{15}\text{N}$ , 98%)	neat	10 mg
ULM-10003	Vitamin B <sub>5</sub> , calcium salt·H <sub>2</sub> O (calcium pantothenate·H <sub>2</sub> O) (unlabeled)	neat	1 mg, 5 mg, 10 mg
DLM-9069	Vitamin B <sub>6</sub> (pyridoxal) (methyl-D <sub>3</sub> , 98%)	neat	1 mg, 5 mg, 10 mg
ULM-9118	Vitamin B <sub>6</sub> (pyridoxal·HCl) (unlabeled)	neat	1 mg, 5 mg, 10 mg
DLM-9119	Vitamin B <sub>6</sub> (pyridoxamine·2HCl) (methyl-D <sub>3</sub> , 98%)	neat	1 mg, 5 mg, 10 mg
ULM-9120	Vitamin B <sub>6</sub> (pyridoxamine·2HCl) (unlabeled)	neat	1 mg, 5 mg, 10 mg
CLM-7563	Vitamin B <sub>6</sub> (pyridoxine·HCl) (4,5-bis(hydroxymethyl)- $^{13}\text{C}_4$ , 99%)	neat	10 mg
DLM-8754	Vitamin B <sub>6</sub> (pyridoxine·HCl) (5-hydroxymethyl-D <sub>2</sub> , 98%)	neat	1 mg, 5 mg
DLM-9121	Vitamin B <sub>6</sub> (pyridoxine·HCl) (methyl-D <sub>3</sub> , 98%) CP 96%	neat	1 mg, 5 mg, 10 mg
ULM-9122	Vitamin B <sub>6</sub> (pyridoxine·HCl) (unlabeled) CP 96%	neat	1 mg, 5 mg, 10 mg
DLM-9793-N	Vitamin B <sub>6</sub> phosphate (pyridoxal phosphate) (methyl-D <sub>3</sub> , 97%) (mix of 5-,3-isomers) CP 97%	neat	1 mg
DLM-8806	Vitamin B <sub>7</sub> (biotin) (ring-6,6-D <sub>2</sub> , 98%) CP 97%	neat	5 mg, 10 mg, 20 mg
DLM-9751	Vitamin B <sub>7</sub> (biotin) (3',3',4',4'-D <sub>4</sub> , 98%) CP 95%	neat	1 mg
ULM-9129	Vitamin B <sub>7</sub> (biotin) (unlabeled)	neat	1 mg, 5 mg
CLM-7861-N	Vitamin B <sub>9</sub> (folic acid) (glutamic acid- $^{13}\text{C}_5$ , 99%) CP 95%	neat	1 mg, 5 mg
CLM-7861	Vitamin B <sub>9</sub> (folic acid) (glutamic acid- $^{13}\text{C}_5$ , 95%) contains ~10% H <sub>2</sub> O	neat	Please inquire
CNLM-9564	Vitamin B <sub>9</sub> (folic acid) (glutamic acid- $^{13}\text{C}_5$ , 99%; $^{15}\text{N}$ , 98%) CP 95%	neat	1 mg, 5 mg
CLM-9770-E	Vitamin B <sub>12</sub> (cyanocobalamin) ( $^{13}\text{C}_7$ , 99%) CP 95%	1 µg/mL in methanol	1 mL
ULM-10005-E	Vitamin B <sub>12</sub> (cyanocobalamin) (unlabeled)	1 µg/mL in methanol	1 mL

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Catalog No.	Description	Concentration	Unit Size
CLM-3085	Vitamin C (L-ascorbic acid) (1- <sup>13</sup> C, 99%)	neat	0.05 g, 0.1 g, 0.25 g, 0.5 g
CLM-10991	Vitamin C (L-ascorbic acid) (1,2- <sup>13</sup> C <sub>2</sub> , 99%)	neat	Please inquire
CLM-7283	Vitamin C (L-ascorbic acid) (U- <sup>13</sup> C <sub>6</sub> , 98%)	neat	0.05 g, 0.1 g
V-038*	Vitamin C (L-ascorbic acid) (unlabeled)	1 mg/mL in acetonitrile:water (1:1)	1 mL

## Fat Soluble

Catalog No.	Description	Concentration	Unit Size
CLM-6126	β-Carotene (provitamin A) (10,10',11,11'- <sup>13</sup> C <sub>4</sub> , 99%)	neat	Please inquire
CLM-9641	β-Carotene (provitamin A) (12,12',13,13',14,14',15,15',20,20'- <sup>13</sup> C <sub>10</sub> , 99%) CP 97%	neat	Please inquire
DLM-3829	β-Carotene (provitamin A) (19,19,19,19',19',19'-D <sub>6</sub> , 98%)	neat	Please inquire
DLM-2439	β-Carotene (provitamin A) (10,10',19,19,19,19',19',19'-D <sub>8</sub> , 97%)	neat	Please inquire
CLM-12291-A	1,25-Dihydroxyvitamin D2 (25,26,27- <sup>13</sup> C <sub>3</sub> , 98%) CP 95%	5 µg/mL in ethanol	1 mL
CLM-11417	1,25-Dihydroxyvitamin D2 (20,21,22,26,27- <sup>13</sup> C <sub>5</sub> , 98%) CP 95%	neat	Please inquire
ULM-9106-C	1,25-Dihydroxyvitamin D2 (unlabeled) CP 95%	100 µg/mL in ethanol	1 mL
ULM-9106-B	1,25-Dihydroxyvitamin D2 (unlabeled) CP 95%	50 µg/mL in ethanol	1 mL
ULM-9106	1,25-Dihydroxyvitamin D2 (unlabeled) CP 95%	neat	0.1 mg, 1 mg
CLM-12292-A	1,25-Dihydroxyvitamin D3 (25,26,27- <sup>13</sup> C <sub>3</sub> , 98%) CP 95%	5 µg/mL in ethanol	1 mL
DLM-9107-C	1,25-Dihydroxyvitamin D3 (6,19,19-D <sub>3</sub> , 97%) CP 95%	100 µg/mL in ethanol	1 mL
DLM-9107-B	1,25-Dihydroxyvitamin D3 (6,19,19-D <sub>3</sub> , 97%) CP 95%	50 µg/mL in ethanol	1 mL
DLM-9107	1,25-Dihydroxyvitamin D3 (6,19,19-D <sub>3</sub> , 97%) CP 95%	neat	1 mg
ULM-9108-C	1,25-Dihydroxyvitamin D3 (unlabeled) CP 95%	100 µg/mL in ethanol	1 mL
ULM-9108-B	1,25-Dihydroxyvitamin D3 (unlabeled) CP 95%	50 µg/mL in ethanol	1 mL
ULM-9108	1,25-Dihydroxyvitamin D3 (unlabeled) CP 95%	neat	0.5 mg, 1 mg
ULM-9109-C	24,25-Dihydroxyvitamin D2 (unlabeled)	100 µg/mL in ethanol	1 mL
ULM-9109	24,25-Dihydroxyvitamin D2 (unlabeled)	neat	1 mg
CLM-11420	24R,25-Dihydroxyvitamin D3 (23,24,25,26,27- <sup>13</sup> C <sub>5</sub> , 98%) CP 95%	neat	Please inquire
DLM-9404-C	24R,25-Dihydroxyvitamin D3 (26,26,26,27,27,27-D <sub>6</sub> , 98%) CP 97%	100 µg/mL in ethanol	1 mL
DLM-9404	24R,25-Dihydroxyvitamin D3 (26,26,26,27,27,27-D <sub>6</sub> , 98%) CP 97%	neat	1 mg
ULM-10610-C	24R,25-Dihydroxyvitamin D3 (unlabeled) CP 97%	100 µg/mL in ethanol	1 mL
ULM-10610	24R,25-Dihydroxyvitamin D3 (unlabeled) CP 97%	neat	1 mg
CLM-11418	3- <i>epi</i> -25-Hydroxyvitamin D2 (22,26,27- <sup>13</sup> C <sub>3</sub> , 98%) CP 95%	neat	Please inquire
CLM-11419	3- <i>epi</i> -25-Hydroxyvitamin D2 (20,21,22,26,27- <sup>13</sup> C <sub>5</sub> , 98%) CP 95%	neat	Please inquire
ULM-9110-C	3- <i>epi</i> -25-Hydroxyvitamin D2 (unlabeled)	100 µg/mL in ethanol	1 mL
ULM-9110-B	3- <i>epi</i> -25-Hydroxyvitamin D2 (unlabeled)	50 µg/mL in ethanol	1 mL
ULM-9110	3- <i>epi</i> -25-Hydroxyvitamin D2 (unlabeled)	neat	1 mg
CLM-11421	25-Hydroxyvitamin D2 (22,26,27- <sup>13</sup> C <sub>3</sub> , 98%) CP 95%	neat	Please inquire
CLM-11422	25-Hydroxyvitamin D2 (20,21,22,26,27- <sup>13</sup> C <sub>5</sub> , 98%) CP 95%	neat	Please inquire
DLM-9114-C	25-Hydroxyvitamin D2 (6,19,19-D <sub>3</sub> , 97%)	100 µg/mL in ethanol	1 mL
DLM-9114-B	25-Hydroxyvitamin D2 (6,19,19-D <sub>3</sub> , 97%)	50 µg/mL in ethanol	1 mL
DLM-9114-A	25-Hydroxyvitamin D2 (6,19,19-D <sub>3</sub> , 97%)	5 µg/mL in ethanol	1 mL
DLM-9114	25-Hydroxyvitamin D2 (6,19,19-D <sub>3</sub> , 97%)	neat	1 mg
DLM-10219	25-Hydroxyvitamin D2 (26,26,26,27,27,27-D <sub>6</sub> , 96%) CP 95%	neat	Please inquire
ULM-9115-C	25-Hydroxyvitamin D2 (unlabeled)	100 µg/mL in ethanol	1 mL
ULM-9115-B	25-Hydroxyvitamin D2 (unlabeled)	50 µg/mL in ethanol	1 mL
ULM-9115-A	25-Hydroxyvitamin D2 (unlabeled)	5 µg/mL in ethanol	1 mL
ULM-9115	25-Hydroxyvitamin D2 (unlabeled)	neat	1 mg
DLM-10611-C	25-Hydroxyvitamin D2 sulfate, sodium salt (6,19,19-D <sub>3</sub> , 97%) CP 97%	100 µg/mL in ethanol	1 mL
ULM-10612-C	25-Hydroxyvitamin D2 sulfate, sodium salt (unlabeled) CP 97%	100 µg/mL in ethanol	1 mL

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.

For research use only. Not for use in diagnostic procedures.

## Vitamins and Their Metabolites (continued)

Catalog No.	Description	Concentration	Unit Size
CLM-10266-C	3- <i>epi</i> -25-Hydroxyvitamin D3 (23,24,25,26,27- <sup>13</sup> C <sub>5</sub> , 99%) CP 96%	100 µg/mL in ethanol	1 mL
DLM-9111-C	3- <i>epi</i> -25-Hydroxyvitamin D3 (6,19,19-D <sub>3</sub> , 98%)	100 µg/mL in ethanol	1 mL
DLM-9111-B	3- <i>epi</i> -25-Hydroxyvitamin D3 (6,19,19-D <sub>3</sub> , 98%)	50 µg/mL in ethanol	1 mL
DLM-9111	3- <i>epi</i> -25-Hydroxyvitamin D3 (6,19,19-D <sub>3</sub> , 98%)	neat	1 mg
DLM-10912	3- <i>epi</i> -25-Hydroxyvitamin D3 (26,26,26,27,27,27-D <sub>6</sub> , 96%) CP 95%	neat	Please inquire
ULM-9112-C	3- <i>epi</i> -25-Hydroxyvitamin D3 (unlabeled)	100 µg/mL in ethanol	1 mL
ULM-9112-B	3- <i>epi</i> -25-Hydroxyvitamin D3 (unlabeled)	50 µg/mL in ethanol	1 mL
ULM-9112	3- <i>epi</i> -25-Hydroxyvitamin D3 (unlabeled)	neat	1 mg
CLM-10025-C	25-Hydroxyvitamin D3 (23,24,25,26,27- <sup>13</sup> C <sub>5</sub> , 99%) CP 95%	100 µg/mL in ethanol	1 mL
CLM-10025	25-Hydroxyvitamin D3 (23,24,25,26,27- <sup>13</sup> C <sub>5</sub> , 99%) CP 95%	neat	1 mg
DLM-9116-C	25-Hydroxyvitamin D3 (6,19,19-D <sub>3</sub> , 97%)	100 µg/mL in ethanol	1 mL
DLM-9116-B	25-Hydroxyvitamin D3 (6,19,19-D <sub>3</sub> , 97%)	50 µg/mL in ethanol	1 mL
DLM-9116-A	25-Hydroxyvitamin D3 (6,19,19-D <sub>3</sub> , 97%)	5 µg/mL in ethanol	1 mL
DLM-9116	25-Hydroxyvitamin D3 (6,19,19-D <sub>3</sub> , 97%)	neat	1 mg, 5 mg
DLM-11423	25-Hydroxyvitamin D3 (26,26,26,27,27,27-D <sub>6</sub> , 98%) CP 95%	neat	Please inquire
ULM-9117-C	25-Hydroxyvitamin D3 (unlabeled)	100 µg/mL in ethanol	1 mL
ULM-9117-B	25-Hydroxyvitamin D3 (unlabeled)	50 µg/mL in ethanol	1 mL
ULM-9117-A	25-Hydroxyvitamin D3 (unlabeled)	5 µg/mL in ethanol	1 mL
ULM-9117	25-Hydroxyvitamin D3 (unlabeled)	neat	5 mg
DLM-7708-C	25-Hydroxyvitamin D3 monohydrate (26,26,26,27,27,27-D <sub>6</sub> , 98%) CP 97%	100 µg/mL in ethanol	1 mL
DLM-7708-B	25-Hydroxyvitamin D3 monohydrate (26,26,26,27,27,27-D <sub>6</sub> , 98%) CP 97%	50 µg/mL in ethanol	1 mL
DLM-7708	25-Hydroxyvitamin D3 monohydrate (26,26,26,27,27,27-D <sub>6</sub> , 98%) CP 97%	neat	1 mg
DLM-10782-C	25-Hydroxyvitamin D3 sulfate, sodium salt (6,19,19-D <sub>3</sub> , 97%) CP 97%	100 µg/mL in ethanol	Please inquire
ULM-10781-C	25-Hydroxyvitamin D3 sulfate, sodium salt (unlabeled) CP 97%	100 µg/mL in ethanol	Please inquire
CLM-331	Vitamin A (retinoic acid) (10- <sup>13</sup> C, 99%)	neat	Please inquire
CLM-328	Vitamin A (retinoic acid) (11- <sup>13</sup> C, 98%)	neat	Please inquire
CLM-329	Vitamin A (retinoic acid) (14- <sup>13</sup> C, 99%)	neat	Please inquire
CLM-330	Vitamin A (retinoic acid) (15- <sup>13</sup> C, 99%)	neat	Please inquire
CLM-4343	Vitamin A (retinoic acid) (10,11,14,15- <sup>13</sup> C <sub>4</sub> , 99%)	neat	Please inquire
DLM-7720	Vitamin A (retinoic acid) (19,19,19,20,20,20-D <sub>6</sub> , 96%)	neat	1 mg
CLM-10259	Vitamin A (retinol) (12,13,14,20- <sup>13</sup> C <sub>4</sub> , 99%) (50 ppm butylated hydroxytoluene – “BHT”) CP 95%	neat	Please inquire
DLM-9305	Vitamin A (retinol) (10,19,19,19-D <sub>4</sub> , 96%) (50 ppm butylated hydroxytoluene – “BHT”) CP 95%	neat	1 mg, 5 mg
DLM-8113	Vitamin A (retinol) (19,19,19,20,20,20-D <sub>6</sub> , 96%) (50 ppm butylated hydroxytoluene – “BHT”) CP 95%	neat	1 mg, 5 mg, 10 mg
DLM-9306	Vitamin A (retinol) (10,14,19,19,19,20,20,20-D <sub>8</sub> , 90%) (50 ppm butylated hydroxytoluene – “BHT”) CP 95%	neat	Please inquire
CLM-8870	Vitamin A acetate (retinol acetate) (12,13,14,20- <sup>13</sup> C <sub>4</sub> , 99%)	neat	Please inquire
CLM-4831	Vitamin A acetate (retinol acetate) (8,9,10,12,13,14,19,20- <sup>13</sup> C <sub>8</sub> , 99%)	neat	Please inquire
CLM-7277	Vitamin A acetate (retinol acetate) (8,9,10,11,12,13,14,15,19,20- <sup>13</sup> C <sub>10</sub> , 99%)	neat	Please inquire
DLM-2244	Vitamin A acetate (retinol acetate) (10,19,19,19-D <sub>4</sub> , 96%) (3-4% <i>cis</i> )	neat	Please inquire
DLM-3828	Vitamin A acetate (retinol acetate) (19,19,19,20,20,20-D <sub>6</sub> , 96%) (3-4% <i>cis</i> )	neat	Please inquire
DLM-4203	Vitamin A acetate (retinol acetate) (10,14,19,19,19,20,20,20-D <sub>8</sub> , 90%) (3-4% <i>cis</i> )	neat	Please inquire
CLM-320	Vitamin A aldehyde (retinal) (10- <sup>13</sup> C, 99%)	neat	Please inquire
CLM-325	Vitamin A aldehyde (retinal) (11- <sup>13</sup> C, 99%)	neat	Please inquire
CLM-326	Vitamin A aldehyde (retinal) (14- <sup>13</sup> C, 99%)	neat	Please inquire
CLM-327	Vitamin A aldehyde (retinal) (15- <sup>13</sup> C, 98%)	neat	Please inquire
CLM-10772	Vitamin A aldehyde (retinal) (12,13,14,20- <sup>13</sup> C <sub>4</sub> , 96%)	neat	Please inquire
DLM-7719	Vitamin A aldehyde (retinal) (19,19,19,20,20,20-D <sub>6</sub> , 96%)	neat	Please inquire

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.  
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Catalog No.	Description	Concentration	Unit Size
CLM-9395	Vitamin A palmitate (retinyl palmitate) (12,13,20- <sup>13</sup> C <sub>3</sub> , 98%) (all <i>trans</i> , <4% <i>cis</i> , 50 ppm butylated hydroxytoluene – “BHT”)	neat	Please inquire
CLM-10838	Vitamin A palmitate (retinyl palmitate) (8,9,10,11,12,13,14,15,19,20- <sup>13</sup> C <sub>10</sub> , 99%) (all <i>trans</i> , <4% <i>cis</i> , 50 ppm butylated hydroxytoluene – “BHT”)	neat	Please inquire
DLM-4902	Vitamin A palmitate (retinyl palmitate) (10,19,19,19-D <sub>4</sub> , 96%) (all <i>trans</i> , <4% <i>cis</i> , 50 ppm butylated hydroxytoluene – “BHT”)	neat	1 mg, 5 mg
DLM-9309	Vitamin A palmitate (retinyl palmitate) (19,19,19,20,20,20-D <sub>6</sub> , 97%) (all <i>trans</i> , <4% <i>cis</i> , 50 ppm butylated hydroxytoluene – “BHT”)	neat	Please inquire
DLM-8985-D	Vitamin D <sub>2</sub> (ergocalciferol) (6,19,19-D <sub>3</sub> , 97%)	1000 µg/mL in ethanol	1 mL
DLM-8985-C	Vitamin D <sub>2</sub> (ergocalciferol) (6,19,19-D <sub>3</sub> , 97%)	100 µg/mL in ethanol	1 mL
DLM-8985	Vitamin D <sub>2</sub> (ergocalciferol) (6,19,19-D <sub>3</sub> , 97%)	neat	1 mg
ULM-9124-D	Vitamin D <sub>2</sub> (ergocalciferol) (unlabeled)	1000 µg/mL in ethanol	1 mL
ULM-9124-C	Vitamin D <sub>2</sub> (ergocalciferol) (unlabeled)	100 µg/mL in ethanol	1 mL
ULM-9124	Vitamin D <sub>2</sub> (ergocalciferol) (unlabeled)	neat	1 mg, 5 mg, 10 mg
DLM-10478-C	Vitamin D <sub>2</sub> sulfate, sodium salt (ergocalciferol sulfate) (6,19,19-D <sub>3</sub> , 98%) CP 97%	100 µg/mL in ethanol	1 mL
ULM-10477-C	Vitamin D <sub>2</sub> sulfate, sodium salt (ergocalciferol sulfate) (unlabeled) CP 97%	100 µg/mL in ethanol	1 mL
CLM-7850	Vitamin D <sub>3</sub> (cholecalciferol) (23,24- <sup>13</sup> C <sub>2</sub> , 99%) CP 90%	neat	Please inquire
CLM-10469-C	Vitamin D <sub>3</sub> (cholecalciferol) (25,26,26- <sup>13</sup> C <sub>3</sub> , 98%) CP 97%	100 µg/mL in ethanol	1 mL
CLM-10470-D	Vitamin D <sub>3</sub> (cholecalciferol) (23,24,25,26,26- <sup>13</sup> C <sub>5</sub> , 98%) CP 97%	1000 µg/mL in ethanol	1 mL
CLM-10470-C	Vitamin D <sub>3</sub> (cholecalciferol) (23,24,25,26,26- <sup>13</sup> C <sub>5</sub> , 98%) CP 97%	100 µg/mL in ethanol	1 mL
DLM-8853-D	Vitamin D <sub>3</sub> (cholecalciferol) (6,19,19-D <sub>3</sub> , 97%) CP 97%	1000 µg/mL in ethanol	1 mL
DLM-8853-C	Vitamin D <sub>3</sub> (cholecalciferol) (6,19,19-D <sub>3</sub> , 97%) CP 97%	100 µg/mL in ethanol	1 mL
DLM-10749-D	Vitamin D <sub>3</sub> (cholecalciferol) (26,26,26,27,27,27-D <sub>6</sub> , 98%) CP 95%	1 mg/mL in ethanol	1 mL
DLM-10749-C	Vitamin D <sub>3</sub> (cholecalciferol) (26,26,26,27,27,27-D <sub>6</sub> , 98%) CP 95%	100 µg/mL in ethanol	1 mL
ULM-9125-D	Vitamin D <sub>3</sub> (cholecalciferol) (unlabeled)	1000 µg/mL in ethanol	1 mL
ULM-9125-C	Vitamin D <sub>3</sub> (cholecalciferol) (unlabeled)	100 µg/mL in ethanol	1 mL
ULM-9125	Vitamin D <sub>3</sub> (cholecalciferol) (unlabeled)	neat	1 mg, 5 mg, 10 mg
DLM-10475-C	Vitamin D <sub>3</sub> sulfate, sodium salt (cholecalciferol sulfate) (6,19,19-D <sub>3</sub> , 98%) CP 97%	100 µg/mL in ethanol	1 mL
ULM-10474-C	Vitamin D <sub>3</sub> sulfate, sodium salt (cholecalciferol sulfate) (unlabeled) CP 97%	100 µg/mL in ethanol	1 mL
CLM-10274	Vitamin E (DL- $\alpha$ -tocopherol) (trimethylphenyl- <sup>13</sup> C <sub>3</sub> , 99%) CP 96%	neat	1 mg
CLM-10273	Vitamin E ( $\alpha$ -tocopherol) (trimethyl- <sup>13</sup> C <sub>3</sub> phenyl, 99%) CP 96%	neat	1 mg
CLM-10275	Vitamin E ( $\alpha$ -tocopherol) (phenyl- <sup>13</sup> C <sub>6</sub> , 99%) CP 96%	neat	1 mg
CLM-10276	Vitamin E ( $\alpha$ -tocopherol) (trimethylphenyl- <sup>13</sup> C <sub>9</sub> , 99%) CP 96%	neat	1 mg
DLM-9126	Vitamin E ( $\alpha$ -tocopherol) (5-methyl-D <sub>3</sub> , 7-methyl-D <sub>3</sub> , 98%)	neat	2 mg, 5 mg, 10 mg
CDLM-11053-1.2	Vitamin E ( $\alpha$ -tocopherol) (dimethyl- <sup>13</sup> C <sub>2</sub> , 99%; dimethyl-D <sub>6</sub> , 98%)	100 µg/mL in methanol	1.2 mL
ULM-9127-1.2	Vitamin E ( $\alpha$ -tocopherol) (unlabeled)	100 µg/mL in methanol	1.2 mL
ULM-9127	Vitamin E ( $\alpha$ -tocopherol) (unlabeled) CP 96%	neat	1 mg, 5 mg, 10 mg
DLM-8847	Vitamin E acetate ( $\alpha$ -tocopherol acetate) (acetyl-D <sub>3</sub> , 98%)	neat	Please inquire
CDLM-11054-1.2	Vitamin E acetate ( $\alpha$ -tocopherol acetate) (dimethyl- <sup>13</sup> C <sub>2</sub> , acetyl- <sup>13</sup> C <sub>2</sub> , 99%; dimethyl-D <sub>6</sub> , 98%)	100 µg/mL in methanol	1.2 mL
ULM-11055-1.2	Vitamin E acetate ( $\alpha$ -tocopherol acetate) (unlabeled)	100 µg/mL in methanol	1.2 mL
DLM-11047	Vitamin E succinate (tocopherol succinate) (5-methyl-D <sub>3</sub> , 7-methyl-D <sub>3</sub> , 98%) CP 95%	neat	1 mg, 2 mg, 10 mg
CLM-9566	Vitamin K <sub>1</sub> (phylloquinone) (4 $\alpha$ ,5,6,7,8,8 $\alpha$ - <sup>13</sup> C <sub>6</sub> , 99%)	neat	1 mg
DLM-7702	Vitamin K <sub>1</sub> (phylloquinone) (ring-D <sub>4</sub> , 98%)	neat	1 mg
DLM-9130	Vitamin K <sub>1</sub> (phylloquinone) (D <sub>7</sub> , 99%) CP 97%	neat	1 mg, 5 mg, 10 mg
ULM-9131	Vitamin K <sub>1</sub> (phylloquinone) (unlabeled) CP 97%	neat	1 mg, 5 mg, 10 mg

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.

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**Vitamins and Their Metabolites** *(continued)*

Catalog No.	Description	Concentration	Unit Size
CLM-10376	Vitamin K <sub>2</sub> (menaquinone MK-4) (4',5,6,7,8,8'- <sup>13</sup> C <sub>6</sub> , 99%) CP 95%	neat	1 mg
DLM-10379	Vitamin K <sub>2</sub> (menaquinone MK-4) (5,6,7,8-D <sub>4</sub> , 2-methyl-D <sub>3</sub> , 98%) CP 95%	neat	1 mg
CLM-10377	Vitamin K <sub>2</sub> (menaquinone MK-7) (4',5,6,7,8,8'- <sup>13</sup> C <sub>6</sub> , 99%) CP 95%	neat	1 mg
DLM-10380	Vitamin K <sub>2</sub> (menaquinone MK-7) (5,6,7,8-D <sub>4</sub> , 2-methyl-D <sub>3</sub> , 98%) CP 95%	neat	1 mg
CLM-10378	Vitamin K <sub>2</sub> (menaquinone MK-9) (4',5,6,7,8,8'- <sup>13</sup> C <sub>6</sub> , 99%) CP 95%	neat	1 mg
DLM-10381	Vitamin K <sub>2</sub> (menaquinone MK-9) (5,6,7,8-D <sub>4</sub> , 2-methyl-D <sub>3</sub> , 98%) CP 95%	neat	1 mg
DLM-10382	Vitamin K <sub>2</sub> 2,3-epoxide (menaquinone-4 2,3-epoxide) (5,6,7,8-D <sub>4</sub> , 2-methyl-D <sub>3</sub> , 98%) CP 95%	neat	1 mg
ULM-10383	Vitamin K <sub>2</sub> 2,3-epoxide (menaquinone-4 2,3-epoxide) (unlabeled) CP 95%	neat	1 mg
DLM-9132	Vitamin K <sub>3</sub> (menadione) (D <sub>8</sub> , 98%) CP 97%	neat	10 mg, 0.05 g
ULM-9133	Vitamin K <sub>3</sub> (menadione) (unlabeled) CP 97%	neat	1 mg, 5 mg, 10 mg

Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.  
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## Urea

To complement the growing area of urea-based research in the preclinical and clinical fields (e.g., as biomarker of respiratory and renal diseases), CIL offers a variety of stable isotope-labeled urea compounds. These are available in various labeling patterns and in different material grades (i.e., research, MPT, cGMP). In one example application, a  $^{13}\text{C}$  urea breath test can be used to accurately and noninvasively diagnose *H. pylori* infections, such as peptic ulcer disease and gastric cancer. This test involves the oral ingestion of cGMP-grade  $^{13}\text{C}$  urea, with measurement of the  $^{13}\text{CO}_2$  to  $^{12}\text{CO}_2$  area ratios in the expired breath facilitating diagnosis.

Catalog No.	Description	Unit Size
CLM-311	Urea ( $^{13}\text{C}$ , 99%)	1 g
DLM-1269	Urea ( $\text{D}_4$ , 98%)	25 g
NLM-233	Urea ( $^{15}\text{N}_2$ , 98%)	1 g, 5 g
NLM-233-10	Urea ( $^{15}\text{N}_2$ , 10%)	25 g
NLM-233-5	Urea ( $^{15}\text{N}_2$ , 5%)	Please inquire
OLM-655	Urea ( $^{18}\text{O}$ , 95%)	Please inquire
CNLM-234	Urea ( $^{13}\text{C}$ , 99%; $^{15}\text{N}_2$ , 98%)	0.5 g
COLM-4861	Urea ( $^{13}\text{C}$ , 99%; $^{18}\text{O}$ , 98%)	0.5 g
CNOLM-8871	Urea ( $^{13}\text{C}$ , 99%; $^{15}\text{N}_2$ , 99%; $^{18}\text{O}$ , 99%)	Please inquire

For a complete product listing, please visit [isotope.com](https://isotope.com).

## Water

CIL offers a variety of singly and doubly labeled water compounds for use in MS- and NMR-based studies (see list below). These could be applied, for example, in energy-expenditure research or in virtual biopsy methods.

Catalog No.	Description	Unit Size
DLM-4	Deuterium oxide ( $\text{D}$ , 99.9%)	10 g, 25 g, 50 g, 100 g, 1000 g
DLM-4-99.8	Deuterium oxide ( $\text{D}$ , 99.8%)	1000 g
DLM-2259	Deuterium oxide ( $\text{D}$ , 99.8%) microbiologically tested	100 mL, 250 mL, 1 L
DLM-4-99	Deuterium oxide ( $\text{D}$ , 99%)	1000 g, 5000 g
DLM-4-70	Deuterium oxide ( $\text{D}$ , 70%)	1000 g
DLM-2259-70	Deuterium oxide ( $\text{D}$ , 70%) microbiologically tested	Please inquire
OLM-782-90	Water ( $^{17}\text{O}$ , 90%)	1 g
OLM-782-70	Water ( $^{17}\text{O}$ , 70%)	Please inquire
OLM-782-40	Water ( $^{17}\text{O}$ , 35-40%)	1 g
OLM-782-20	Water ( $^{17}\text{O}$ , 20%)	1 g
OLM-782-10	Water ( $^{17}\text{O}$ , 10%)	1 g
OLM-240-97	Water ( $^{18}\text{O}$ , 97%)	1 g
OLM-240-10	Water ( $^{18}\text{O}$ , 10%)	1 g, 5 g, 10 g

For a complete product listing, please visit [isotope.com](https://isotope.com).

*Chemical purity (CP) is 98% or greater, unless otherwise specified.*

*cGMP (current good manufacturing practice) and MPT (microbiological and pyrogen tested) may be available; please inquire.*

*For research use only. Not for use in diagnostic procedures.*

## Additional Information

### Research Use of Products

CIL manufactures highly pure research biochemicals that are produced for research applications. As a service to our customers, some of these materials have been tested for the presence of *S. aureus*, *P. aeruginosa*, *E. coli*, *Salmonella sp.*, aerobic bacteria, yeast, and mold, as well as the presence of endotoxin in the bulk material by taking a random sample of the bulk product. Subsequent aliquots are not retested. Presence of endotoxin is assessed by determining endotoxin content following established protocols and standardized limulus amebocyte lysate (LAL) reagents. Any materials listed in our catalog or website that are designated as “MPT” in the item product number (e.g., DLM-349-MPT) contain these tests as part of release specifications.

If a product does not have an “MPT” designation, CIL may be able to provide microbiological testing on the product. Depending on the compound and the quantity ordered, an additional fee may apply for the testing. Please note that microbiological-tested products are not guaranteed to be sterile and pyrogen-free when received by the customer, and microbiological testing does not imply suitability for any desired use. If the product must be sterile and pyrogen-free for a desired application, CIL recommends that the product be packaged or formulated into its ultimate dose form by the customer or appropriate local facility. The product should always be tested by a qualified pharmacy/facility prior to actual use.

CIL research products are labeled “For research use only. Not for use in diagnostic procedures.” Persons intending to use CIL products in applications involving humans are responsible for complying with all applicable laws and regulations including but not limited to the US FDA, other local regulatory authorities and institutional review boards concerning their specific application or desired use.

It may be necessary to obtain approval for using these research products in humans from the US FDA or the comparable governmental agency in the country of use. CIL will provide supporting information, such as lot-specific analytical data and test method protocols, to assist medical research groups in obtaining approval for the desired use. An Enhanced Data Package (EDP) is also available (see next page for an overview of the technical package contents).

CIL will allocate a specific lot of a product to customers who are starting long-term projects requiring large amounts of material. Benefits from this type of arrangement include experimental consistency arising from use of only one lot, no delay in shipments, and guaranteed stock. Please note that some CIL products have a specific shelf life and cannot be held indefinitely. If interested, please contact your sales manager for further details.

Because of increasing regulatory requirements, CIL manufactures different grades of materials to help researchers with those requirements. Listed below are the grades of materials that CIL currently manufactures:

Catalog No.	Description
CLM-XXX-PK	Research grade
CLM-XXX-MPT-PK	Microbiological and Pyrogen Tested
CLM-XXX-CTM	Manufactured following ICH Q7, Section XIX
CLM-XXX-GMP	Good Manufacturing Practices grade

➤ **For more information on controls in manufacturing and testing of the different grades, go to: [Search](#) → [Literature](#) → [Product Quality Designations from the isotope.com home page](#).**



Image is for illustrative purposes only and may not be representative of actual product(s).

## Enhanced Data Package (EDP)

CIL offers the option of an Enhanced Data Package (EDP). This technical data package is available for most MPT products. It includes all of the data currently included with the MPT products, as well as the additional information listed below. You have the option of purchasing this package at the time of order or at a later date.

*Please note that if you choose to purchase at a later date, some of the information listed below may not be available. Also, the EDP may not be available for all lots. In some cases, only a partial EDP may be available. Please confirm availability and content prior to order.*

### EDP Contents

- Product description: structural formula, stereochemical description, molecular formula.
- Product physical properties: melting point, pH, optical rotation (mix of literature or measured values).
- Outline of the synthesis route (including details of solvents used).
- Data used to confirm structure and chemical purity.
- Impurities: available data on impurities detected and identified together with the method of detection and the cutoff applied.
- Residual solvents: measured residual solvents from the final synthetic step and purification.
- Certificates of Analysis of raw materials, where appropriate.
- Informal stability data: estimated and measured.
  - This will be either actual shelf-life data, if it can be obtained from CIL history or by analysis of in-stock batches, or
  - If no data is available, CIL will commit to assaying the batch provided after six months and one year. Data will be provided after one year, unless the batch fails assay after six months. This option will not be available if the Enhanced Data Package is ordered at a later date.

## cGMP Production Capabilities

With increasing requirements from institutional review boards (IRBs) and governmental agencies, partnering with CIL for your next stable isotope cGMP (current good manufacturing practices) project can help ensure your regulatory compliance. With the world's largest  $^{13}\text{C}$  and  $^{18}\text{O}$  isotope-separation plants, CIL is able to provide the raw materials necessary for your project. Your compound of interest most likely already appears in CIL's extensive list of research compounds – if not, CIL's team of PhD chemists can determine the best method of synthesis for incorporating  $^{13}\text{C}$ ,  $^{15}\text{N}$ , D,  $^{17}\text{O}$ , and/or  $^{18}\text{O}$  into your compound.

CIL has manufactured bulk active pharmaceutical ingredients (APIs) since 1994. It recently added a 15,000-square-foot, state-of-the-art cGMP facility to complement its existing cGMP facilities. An additional team of experts – specializing in synthetic chemistry, customer support, quality control, and quality assurance – serves to provide technical guidance from beginning to end of your project. Partner with CIL to help you meet your increasing regulatory compliance requirements.

### Products of Interest

Catalog No.	Description
CLM-804-CTM	Cholesterol ( $3,4\text{-}^{13}\text{C}_2$ )
DLM-349-CTM	D-Glucose ( $6,6\text{-D}_2$ )
CLM-2262-CTM	L-Leucine ( $^{13}\text{C}_6$ )
DLM-1259-CTM	L-Leucine ( $5,5,5\text{-D}_3$ )
CLM-762-CTM	L-Phenylalanine ( $1\text{-}^{13}\text{C}$ )
CLM-8077-CTM	Pyruvic acid ( $1\text{-}^{13}\text{C}$ )
CLM-156-CTM	Sodium acetate ( $1\text{-}^{13}\text{C}$ )
CLM-440-CTM	Sodium acetate ( $1,2\text{-}^{13}\text{C}_2$ )
CLM-311-GMP	Urea ( $^{13}\text{C}$ )

Other products may be available as CTM/cGMP. Please inquire for details.

### Manufacturing Capabilities

- Dedicated development facility
- Five production and two isolation suites
- Dedicated packaging room
- Production scale from milligrams to multikilograms
- Clinical trials to bulk API
- Customizable projects to meet your needs

### Analytical Services

- Fully equipped, cGMP-dedicated analytical facility
- Method development and validation
- Raw material and final product testing
- Wet chemistry and compendial methods
- Stability studies and chambers
- Analytical instrumentation:
  - High-field NMR ( $^1\text{H}$ , D,  $^{13}\text{C}$ ,  $^{15}\text{N}$ , multinuclear)
  - HPLC with UV, RI, ELSD, DA, Pickering, and MS detection
  - GC with FID, ECD, and MS detection
  - KF
  - FT-IR
  - Polarimetry
  - TOC

### Quality and Compliance

- Drug master files
- FDA-audited facility
- QA release of API product
- Follows FDA and ICH guidances
- CMC sections for NDA or IND

CTM: manufactured following ICH Q7, Section XIX  
GMP: good manufacturing practices grade



Chemical purity (CP) is 98% or greater, unless otherwise specified. MPT (microbiological and pyrogen tested) may be available; please inquire.  
For research use only. Not for use in diagnostic procedures.



## Application Note Examples



### Application Note 51

#### From QC to Quantitation: Utility of QReSS™ Metabolites in FBS Measurements

An area of metabolomics garnering great interest, particularly in discovery efforts, is the profiling and quantitation of cell cultures. In this *in vitro* application, fetal bovine serum (FBS) is commonly used as a supplemental growth medium. Here, the QReSS™ standard mixes were used in the QC of metabolites from variably sourced FBS samples. The QReSS standards are beneficial for QC assessments because they comprise a chemically diverse set of 18 stable isotope-labeled metabolites that span a broad molecular weight range, possess varied ionization propensities, and cover a distribution in class and retention time. [Click here to read more.](#)



### Application Note 49

#### Standardizing Quantitative Metabolomics Analyses Through the QReSS™ Kit

One of the incessant challenges in mass spectrometry (MS)-based “omics” is the qualification of methods and instrument platforms. Required are materials that can be used to routinely test platform performance over time and to test assay effectiveness throughout all phases of a work list.<sup>1,2</sup> Such evaluations are necessary as it provides an indicator to the effectiveness of an analytical method and platform. Errors or deficiencies observed in the performance would then cue corrective action. This could help save precious samples and experimental resources, while also extend column lifetimes. [Click here to read more.](#)



### Application Note 43

#### Analysis of Whole-Body Branched-Chain Amino Acid Metabolism in Mice Utilizing 20% Leucine <sup>13</sup>C<sub>6</sub> and 20% Valine <sup>13</sup>C<sub>5</sub> Mouse Feed

Cancer cells have altered metabolism relative to normal cells. To date, most cancer metabolism research has focused on understanding the mechanisms of cell autonomous metabolic alterations such as the influence of different oncogenic signals on nutrient utilization and the effects of altered regulation of specific enzymes on metabolic fluxes through different pathways (Cairns RA et al. 2011). While these studies have provided insight into metabolic needs of proliferating cancer cells (Vander Heiden MG et al. 2009), they do not address potential interactions between tumor and normal tissues. [Click here to read more.](#)



### Application Note 31

#### Tracing Lipid Disposition *in vivo* Using Stable Isotope-Labeled Fatty Acids and Mass Spectrometry

Lipids are ubiquitous molecules which serve a variety of important biological functions, including energy storage (triglycerides), modulation of cellular membrane structure and function (phospholipids and cholesterol), intracellular signaling, and hormonal regulation. Dysfunctions of lipid metabolism contribute to a variety of diseases including, among others, atherosclerosis, hypertriglyceridemia, and type 2 diabetes. As such, understanding the synthesis, regulation, and transport of lipids in the body is important to developing new and improved therapies for these diseases. Stable isotopes have been used to study several aspects of lipid metabolism including the synthesis and disposition of cholesterol,<sup>1,2</sup> phospholipids,<sup>3</sup> and VLDL triglycerides.<sup>4</sup> In this application note, we highlight some of the advantages and experimental considerations for using stable isotope-labeled fatty acids as substrates to study lipid metabolism *in vivo* in mice. [Click here to read more.](#)

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Fax: 1.978.749.2768 | [isotope.com](https://isotope.com)

CIL provides additional testing on many products as a service to our customers. CIL also has cGMP capabilities and can manufacture products to meet your increasing regulatory compliance requirements. Please contact us to learn more.

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